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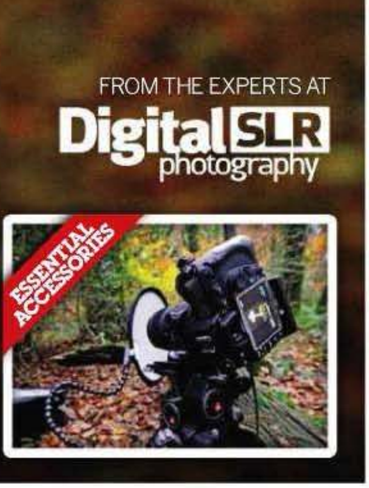
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Welcome...

"As you have no doubt discovered, by using a digital SLR, you have taken a major step towards shooting better pictures. Boasting an incredible level of versatility, delivering superb image quality and forming the heart of a system that can be expanded with lenses, flashguns and various other accessories, the DSLR has led to a revolution in photography that you are now part of. While the digital SLR is relatively easy to use for simple 'snapshot' photography, the truth is that getting the very best from your camera kit and, more importantly, developing the creative side of your photography, requires some time and dedication to learning new techniques and skills. The good news is that *Getting Started in Digital SLR Photography*, produced by the experts at *Digital SLR Photography* magazine, is packed with information, advice and techniques that will help you become a better photographer. If you've ever looked at images from the professionals and wondered how they managed to get such great results, then this guide is for you. We've covered all the basics of photography and provided tried and tested practical techniques for shooting stunning images, along with expert advice to choosing the best gear and pages of inspiring images to get your creative juices flowing. Good luck with your photography. All the best!"

DANIEL LEZANO, EDITOR

Meet our digital photography experts

All our experts are team members or regular contributors to *Digital SLR Photography* magazine. For more expert advice and inspiration, pick up the latest issue, available on the second Tuesday of every month. For further information, visit the magazine's website at www.digitalslrphoto.com

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Canon
ON
OFF
M
A-DEP
AV
TV
P
55mm
0.28m/0.9ft
35
24
18
55

UNDERSTANDING YOUR DIGITAL SLR

Newcomers to digital SLR photography tend to keep their DSLR set to its fully-automatic mode, confused by the various settings. Our extensive guide aims to help beginners take their first steps towards creative freedom

DIGITAL SLRS ARE EXTREMELY SOPHISTICATED picture-taking tools, designed to make shooting great images easier than ever. However, many beginners leave their camera set to its fully-automatic settings, unsure how to get the most out of its numerous other functions. This guide is designed to answer most, if not all, your DSLR questions by explaining how and when to use the various controls. Whether you have a Canon, Nikon, Olympus, Pentax, Sony or another brand, our easy-to-follow guide provides expert advice and practical techniques to help you understand the basic principles of digital SLR photography and develop your skills as a creative image-maker.

This comprehensive guide explains the essentials of digital SLR photography – from exposure modes to White Balance – in an effort to help you get to grips with every function of your camera, and to remove any confusion or apprehension that you may have for trying out new modes. While leaving your digital SLR set to fully automatic can yield decent results in most shooting situations, being able to take control of areas such as exposure, focus and depth-of-field is what digital SLR photography is all about. So follow this guide and practise the many techniques we'll cover and soon you'll be taking the best pictures of your life. Guaranteed!

Why it's time to take control

Digital SLRs have been designed to be as easy to use as a point & shoot compact camera. Most boast a 'Full Auto' mode that takes full control of every major area of camera functions from focus to flash, as well as a number of subject-biased modes that bias the camera's functions for particular types of photography such as portrait, landscape or action. There's also the 'P' or program mode that automatically sets the exposure, but often allows the user a little control by offering program shift to vary the chosen aperture and shutter speed combinations. All are ideal for those who want fuss-free point & shoot photography, but for those of you who want to get the most from your digital SLR and more importantly, want to develop as a photographer, it's time to switch to more creative options. The three exposure modes that offer you far more control are manual and the two semi-automatic modes – aperture-priority and shutter-priority AE. Manual is used predominantly by advanced enthusiasts and professional photographers who are comfortable to be in total control of how the scene is to be exposed, in particular those who work with handheld light meters. We'd recommend beginners delaying shooting in manual until you've got to grips with the semi-automatic modes. For this reason, we've concentrated our focus on the two modes that are most popular with enthusiast photographers, aperture-priority and shutter-priority.

GETTING TO GRIPS WITH YOUR DIGITAL SLR

While every camera brand designs digital SLRs in their own way, there are many similarities in the control layouts of most models. We've highlighted the key functions that you should get to know as soon as possible, as understanding how your DSLR works will help you to capture great pictures with ease

1) SHUTTER RELEASE

Press the shutter release button halfway down to activate the autofocus and exposure systems then fully to take the picture.

2) EXPOSURE COMPENSATION

This is an important exposure override, usually designated with a +/- symbol. Use it to increase or decrease the exposure in 1/3 or 1/2-stop increments.

3) EXPOSURE MODE DIAL

The exposure mode determines how scenes are captured. Full Auto is ideal for beginners, but you should aim to shoot using one of the semi-auto modes.

4) INTEGRAL FLASH

The range of the built-in flash is limited to a few metres but is ideal when taking pictures of friends and family. Most models include a number of flash modes.

5) HOTSHOE

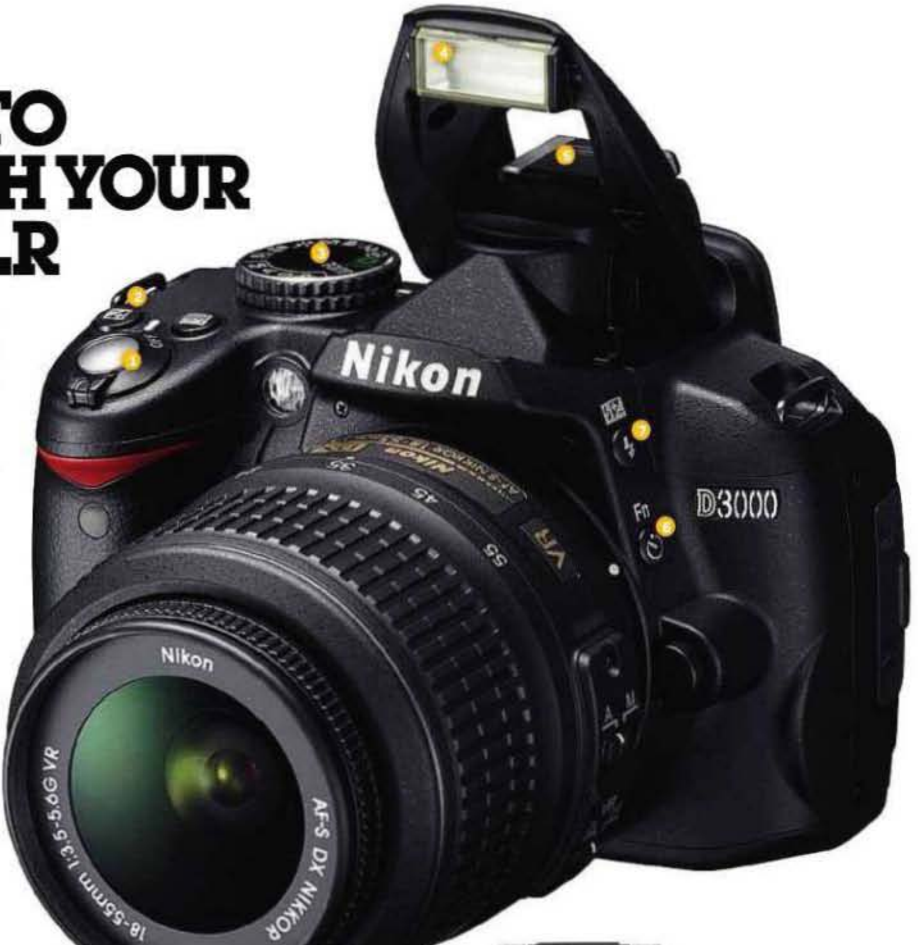
The integral flash is very useful for nearby subjects but, when extra power or features are required, the solution is to slip a flashgun on the hotshoe.

6) Fn BUTTON

Some cameras sport a Fn (Function) button for fast access to regularly selected functions, such as ISO rating, White Balance, AF modes or the drive function.

7) FLASH BUTTON

With most DSLRs, you press a flash button to pop up the integral flash while in one of the 'creative' modes, such as aperture- or shutter-priority.



Nikon
Nikon
D3000
AF-S DX NIKKOR
18-55mm 1:3.5-5.6G VR

8) MAGNIFIER BUTTONS

When reviewing your stored photos, you can zoom into the image to check sharpness. By using the four-way control, you can move from one area of the magnified image to another.

11) VIEWFINDER

The viewfinder image comes via the lens and the reflex mirror, which bounces the image up into the pentaprism. A hood cuts out stray light to provide a clearer, brighter image.

13) FOUR-WAY CONTROL

This handy control, found on most DSLRs, offers an up, down, left and right control and allows you to quickly navigate through the various menu options that appear on the LCD monitor.

DRIVE FUNCTION

Depending on what you're shooting, you can set your DSLR to fire one frame only (Single) or fire sequences (Continuous). You also use this button to select the self-timer.

9) MENU BUTTON

The on-screen menu system allows access to the majority of a camera's functions and is quickly activated by pressing the MENU button beside the LCD monitor.

12) INPUT DIALS

Use these to change settings such as apertures and shutter speeds. They're usually found on the handgrip, on the rear where your thumb rests or, on some models, in both positions.

14) MEMORY CARD SLOT

DSLRs require memory cards boasting big capacities (you should aim for 2GB-8GB). CompactFlash, SD/SDHC and MemoryStick cards are able to hold several gigabytes of information.

10) LCD MONITOR

This is the information centre of your digital SLR, allowing access to most of the camera's settings, as well as the chance to review and edit images and, with many models, shoot in Live View.

FOCUS POINT SELECTOR

DSLRs offer multi-point AF systems and you have the options of leaving all AF points active, individually select the central point or choose one of the surrounding AF points.

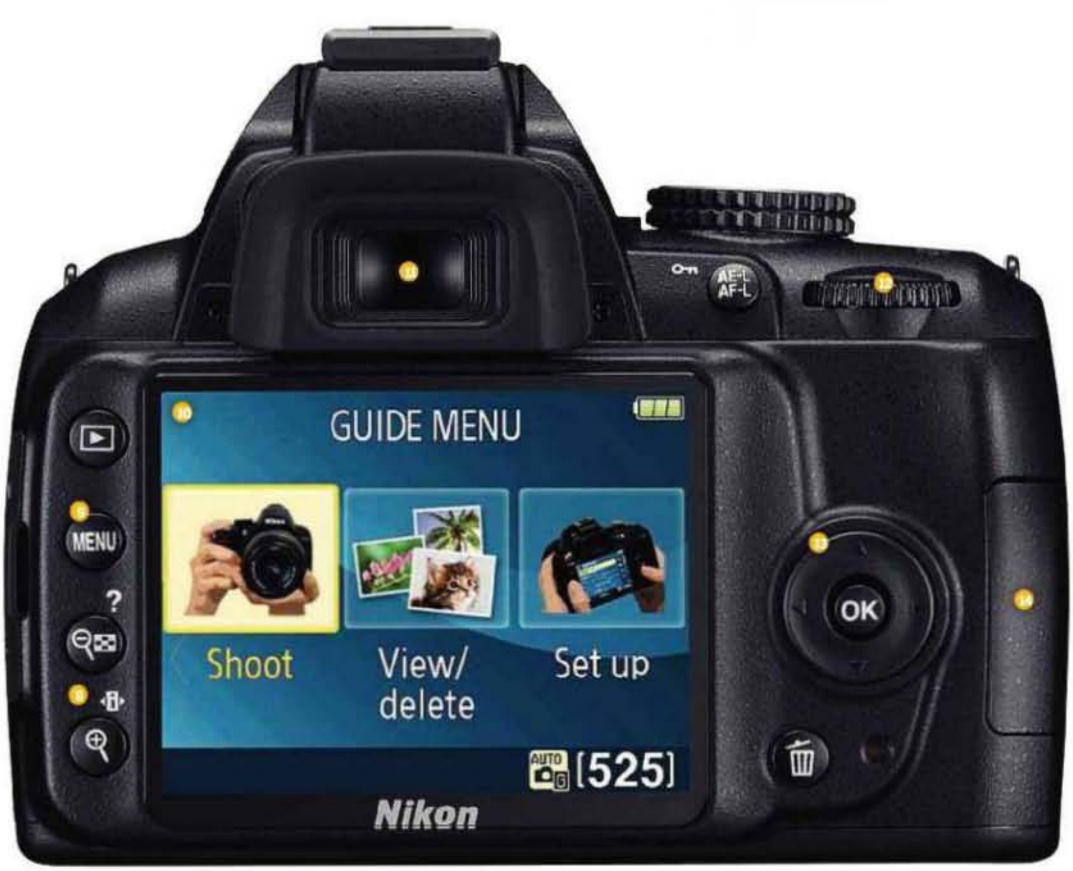
METERING PATTERNS SELECTOR

A choice of metering patterns helps you deal with difficult lighting situations. Most models offer multi-zone and centre-weighted average, as well as either spot or partial.

PRO TIPS

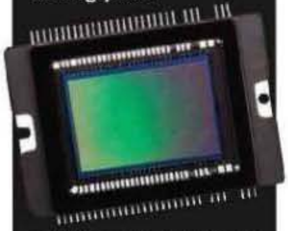
HELP / INFO BUTTON

You'll find that many digital SLRs boast an Info or Help button that provides an explanation of various camera functions, which is a real benefit when trying to understand how your camera works



Inside a DSLR

IMAGE SENSOR At the heart of your camera is the image sensor, which boasts millions of light-receptive pixels that make up the image. Most budget DSLRs have between ten and 12-megapixels.



SENSOR CLEANING
There is a risk when changing lenses of dust entering the camera body and settling on the sensor. Anti-dust systems vibrate the sensor and shake any particles from its surface.

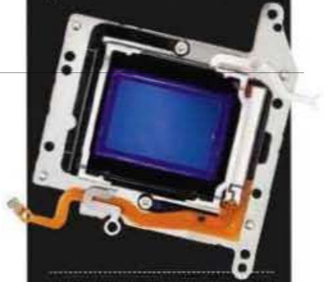


IMAGE STABILISATION
Stabilisers built into lenses (Canon and Nikon) or the camera body (Pentax, Samsung and Sony), allow you to shoot handheld with reduced risk of your images being spoiled by blur from camera shake.

NIKKOR 70-300mm 1:4.5-
VR

Aperture-priority AE

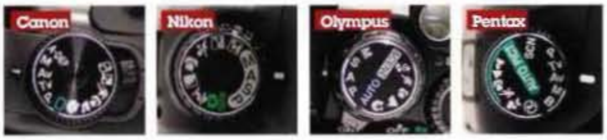
In our opinion, this is the most useful and versatile mode and we recommend it for 95 percent of your photography

APERTURE-PRIORITY AE is without doubt the most popular choice of exposure mode with DSLR photographers. It's termed a semi-automatic mode, because you determine the aperture and the camera automatically selects the corresponding shutter speed.

This mode is suitable for virtually all types of photography and is usually labelled on DSLRs as A or Av (Aperture value). It is particularly popular with landscape and portrait photographers who use it to control depth-of-field and determine how much of the scene appears sharp. Landscapes are often shot with a small aperture to have as much of the scenery as possible appearing sharp while with portraiture, a wide aperture is used so the background behind the subject is thrown out of focus. An illustrated guide to apertures and depth-of-field is shown below.

Using Aperture-priority AE

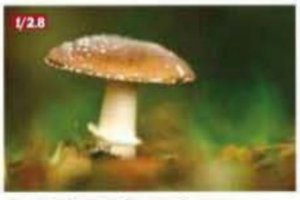
Turn the dial to Av (or A) and then move the input dial (normally found behind the shutter button or on the top right-hand corner on the camera's rear) to change the aperture. Lightly depress the shutter button to see the corresponding shutter speed. As you adjust apertures, the shutter speed automatically changes.



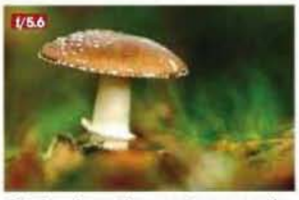
You'll normally find the exposure mode dial on the top left of the camera. We've shown examples from four leading brands above. Once set to Av or A, rotate the input dial to select your aperture, which appears on the LCD monitor. Press the shutter button halfway and the camera sets the shutter speed.

How apertures affect depth-of-field

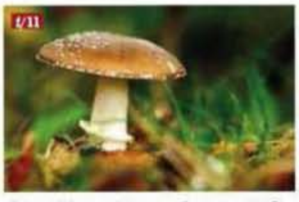
The following set of images, shot on a Nikon D200 with a 28-70mm lens, show how changing the aperture affects depth-of-field.



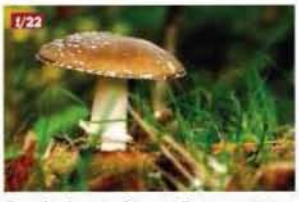
Set the lens to its maximum aperture, and the scene has only a minimal area that is sharp.



Closing down the aperture a couple of stops has resulted in more of the scene being in focus.

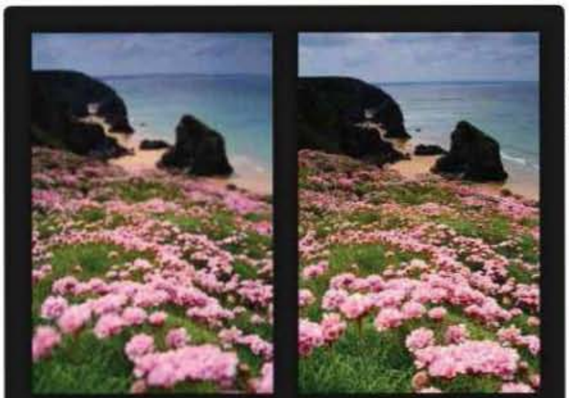


At a mid-aperture setting, most of the scene is in focus but distant subjects still appear soft.



Set the lens to its smallest aperture and you'll discover that far more of the scene appears sharp.

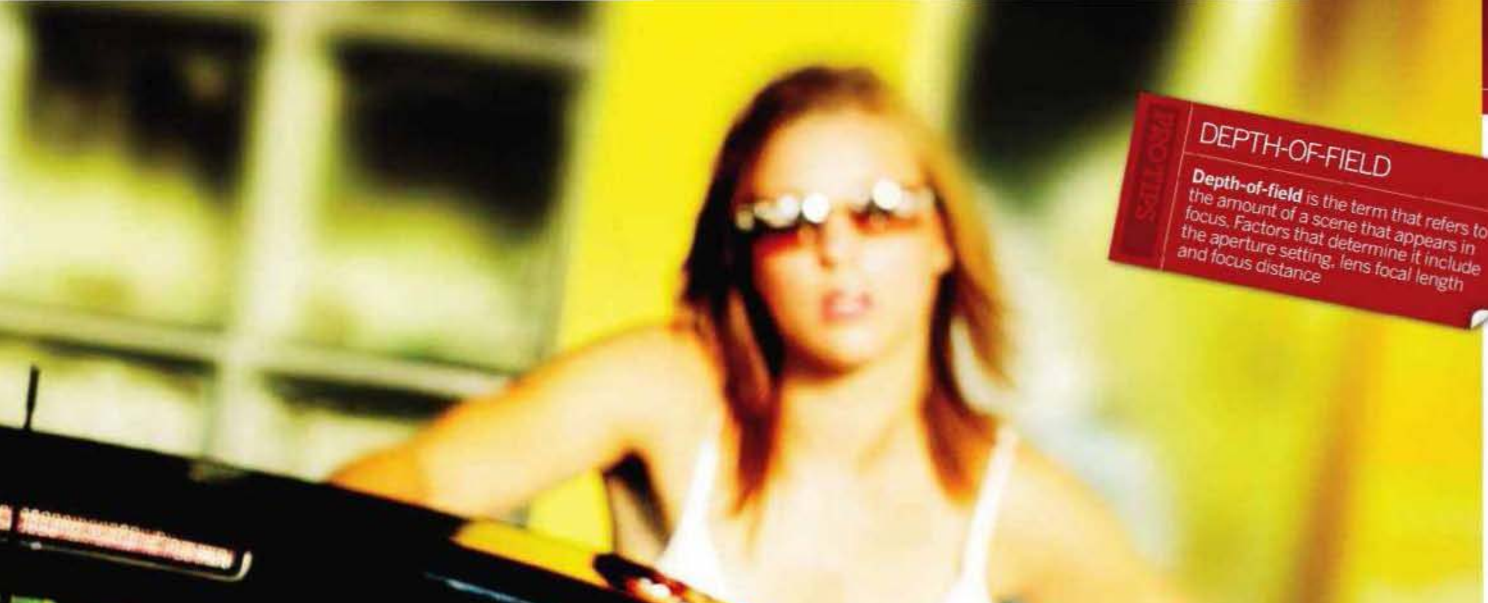
ROSS HODDINOTT



ROSS HODDINOTT

Take creative control

There are no hard and fast rules for when you should select certain apertures – experience and your individual style will help you determine what setting to choose. Take these two examples for instance. The left shot was taken using a wide aperture that produces shallow depth-of-field and only has a narrow band of pink flowers in focus. On the right, a small aperture ensures the whole scene is sharp. There are merits for both – which do you prefer?



BJORN THOMASSEN

PRO TIPS

DEPTH-OF-FIELD

Depth-of-field is the term that refers to the amount of a scene that appears in focus. Factors that determine it include the aperture setting, lens focal length and focus distance

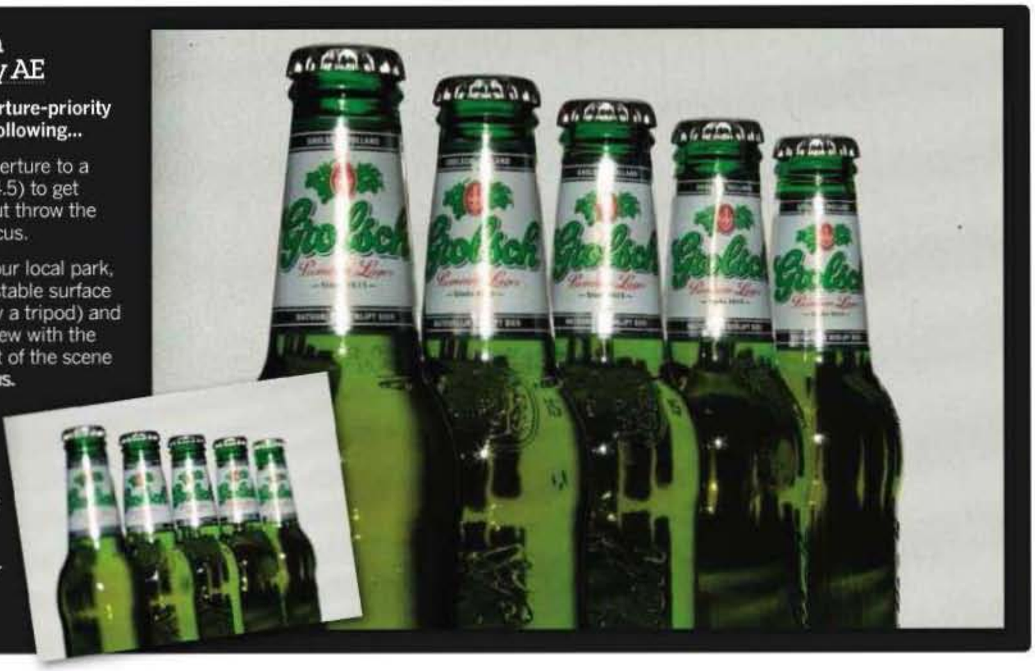
Get to grips with aperture-priority AE

Experiment with aperture-priority AE by shooting the following...

PORTRAIT Set the aperture to a wide value (eg f/3.5-4.5) to get your subject sharp but throw the background out of focus.

LANDSCAPE Go to your local park, set the camera on a stable surface (wall, bench or ideally a tripod) and shoot a wide-angle view with the aperture at f/16. Most of the scene should appear in focus.

DEPTH-OF-FIELD TEST Set up a neat line of empty bottles at various distances and shoot at different apertures. Then review images and see how more appear sharp as you stop down the aperture.



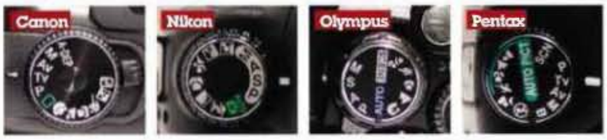
Shutter-priority AE

Choose to capture movement as a streaked blur or a frozen moment by controlling the shutter speed

THIS IS A SEMI-AUTOMATIC mode that allows you to select the shutter speed you want to use and lets the camera automatically set the corresponding aperture. It's the best choice when there is a moving subject in the frame, as it allows you to control whether to freeze its motion by selecting a fast shutter speed, or record it as a blur or streak by selecting a long exposure time.

Using Shutter-priority AE

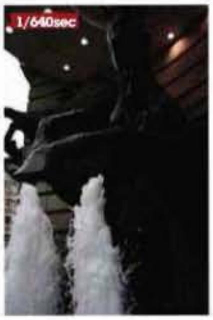
The procedure for setting shutter-priority AE is very similar to how you'd select aperture-priority AE. Turn the dial to Tv or S and then rotate the input dial to select the shutter speed. All displays only show the denominator of a fraction, so 1/250sec appear as 250, while whole seconds are usually displayed with a ", e.g two seconds would be 2".



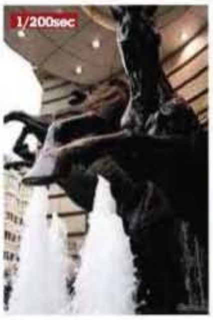
Shutter-priority AE is often labelled as Tv (Time value) or S on the exposure mode dial and the LCD monitor. See above for four examples. Once selected, rotate the input dial to select your shutter speed, press the shutter release halfway and the camera automatically sets the aperture.

HOW SHUTTER SPEEDS DEPICT MOVEMENT IN YOUR IMAGES

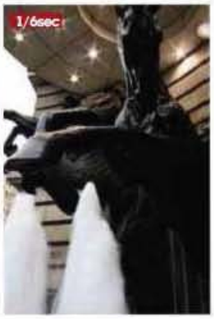
While apertures allow you to control the amount of the scene that appears sharp, shutter speeds determine how moving subjects are recorded. A fast shutter speed freezes action, while a slow speed records it as a blur.



A very fast shutter speed freezes water movement and captures its detail.



Choosing a mid-setting slightly blurs the water but retains limited detail.

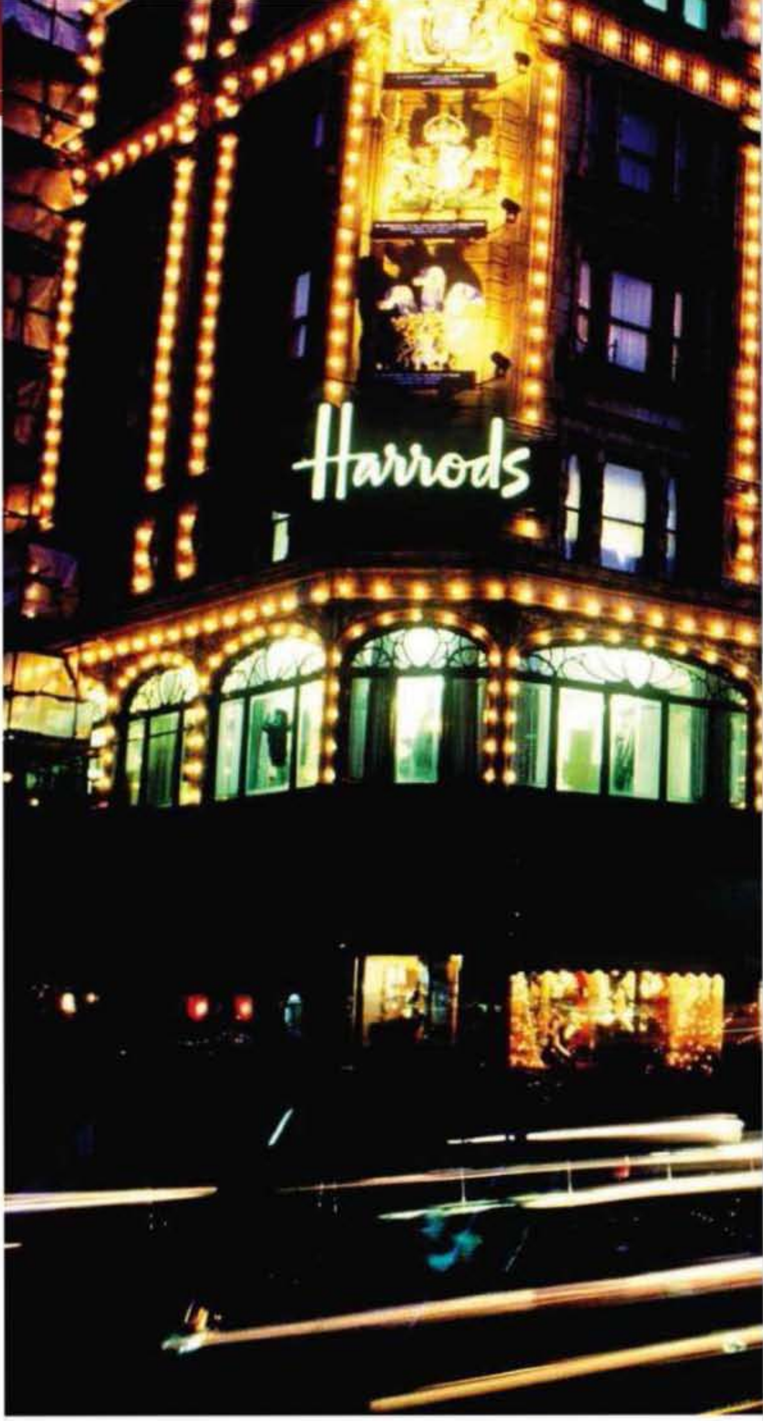


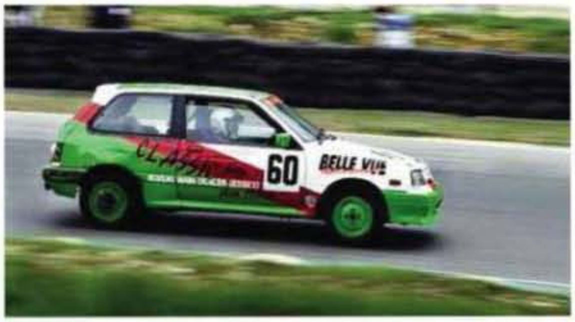
A slow shutter speed blurs movement but some shape remains.

WATCH OUT! Potential shutter problems...

AVOID CAMERA SHAKE! If you're handholding the camera make sure the shutter speed is fast enough to avoid camera shake. A simple way to do this is to check the focal length of the lens and set the shutter speed so it is as a fraction (or reciprocal) of the lens setting. So if you're using a 70-200mm at 200mm, ensure the shutter speed is at least 1/200sec to avoid shake.

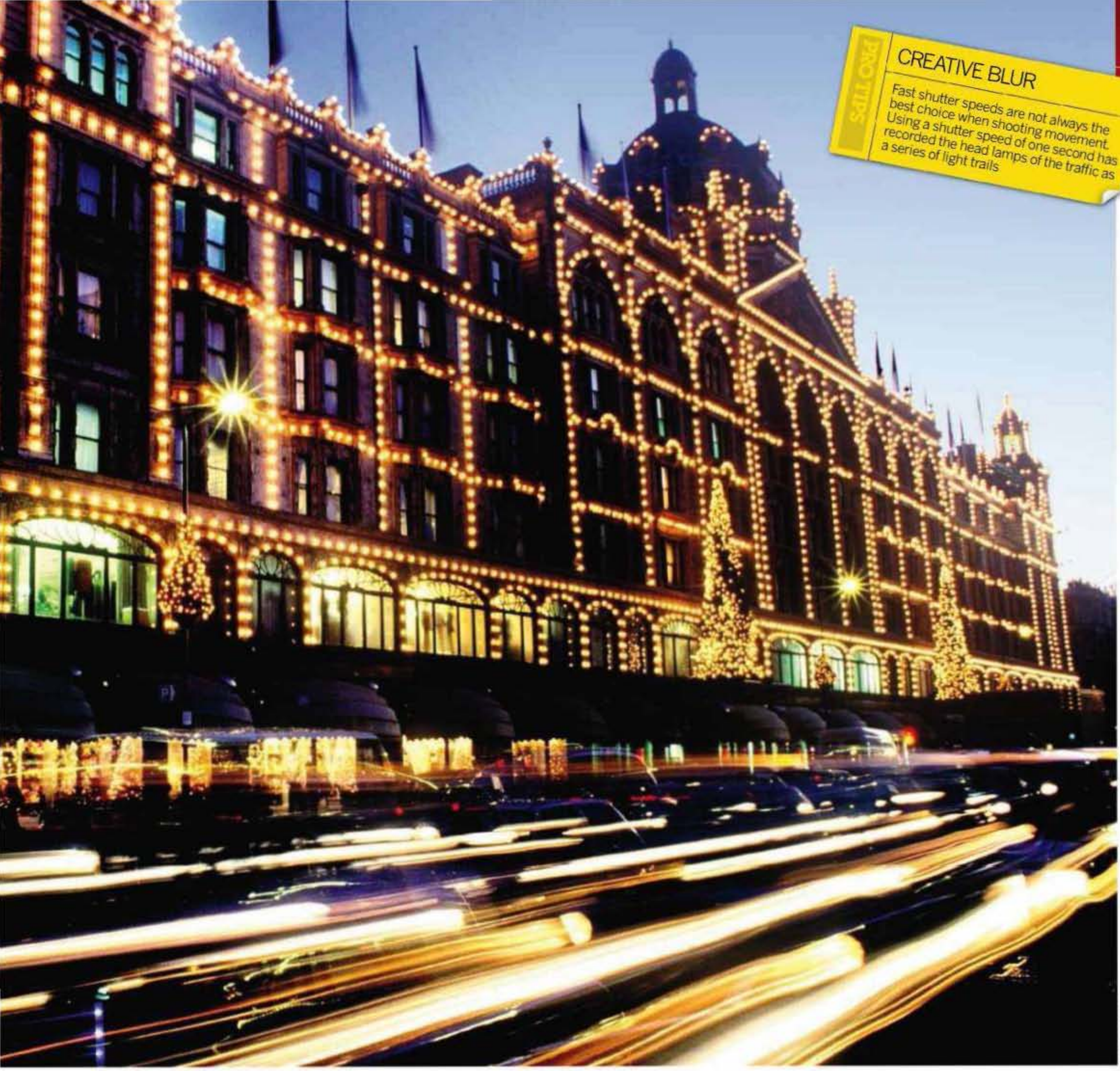
SHUTTER ERROR! If you set a shutter speed and the aperture value flashes in the LCD monitor, it's an indication that the aperture required is unavailable. When this happens set a slower shutter speed and/or increase the ISO rating until the flashing stops.





EMPHASISE MOVEMENT BY PANNING THE CAMERA

If you're feeling confident, try your hand at panning. This technique requires you to set a slow shutter speed such as 1/2sec, press the shutter release as the subject passes by, and follow its movement with the camera. The result is the subject appears sharp while the background records as a blurred streak. It requires practice but is well worth the effort.



PRO TIPS

CREATIVE BLUR

Fast shutter speeds are not always the best choice when shooting movement. Using a shutter speed of one second has recorded the head lamps of the traffic as a series of light trails

TIM GARTSIDE

Shutter speeds for moving subjects

This table provides a starting point of shutter speeds to try when shooting a number of different types of moving subjects. Use these to begin with, then experiment with a range of speeds and study how differently the subject appears when it has been captured at different shutter speed settings.

Subject	Recommended shutter speeds	
	Subject moving towards camera	Subject moving across frame
Athlete	1/125-1/200sec	1/250-1/500sec
Car/motorbike (30mph)	1/250-1/500sec	1/250-1/500sec
Car/motorbike (70mph)	1/250-1/500sec	1/500-1/1000sec
Cyclist	1/200-1/250sec	1/250-1/500sec
Galloping horse	1/250-1/500sec	1/500-1/1000sec
Motorsports	1/500-1/750sec	1/1000-1/2000sec
Surfer	1/250-1/500sec	1/250-1/500sec

Get to grips with shutter-priority AE

Experiment with shutter-priority AE by trying to shoot the following...

River or stream: Set-up your camera on a tripod close to a river and set a slow speed of two seconds. Note how the water's movement is captured as a smooth blur.

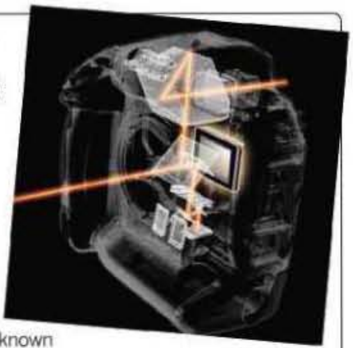
Shutter speed test: Have a friend drive a car at 30mph from left to right along the same road and shoot them at different shutter speeds. Review the images and note the differences.

Autofocus systems

Now for the science part: we explain the secrets of how a digital SLR focuses and how to use it to your advantage

ASK MOST PEOPLE how autofocus on a digital SLR works and the answer you'll get is something like "You press the shutter button and the lens focuses before taking the picture". While there's nothing wrong with this statement, it's a very simple way of describing a highly sophisticated and accurate system. While we won't blind you with science as we cover autofocus systems, it's fair to say there is plenty to take in. Here we provide a jargon-free explanation of how your DSLR's autofocus system works.

HOW AUTOFOCUS SYSTEMS ON DIGITAL SLRS WORK



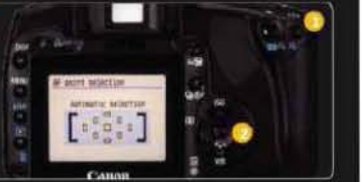
Digital SLRs use what is called a passive autofocus system (also known by its more technical name – phase-detection system), a highly accurate and incredibly quick form of focusing, regardless if the subject is a few feet away or towards a distant horizon. It works by using a beam splitter to direct light on to a sensor, that measures what is known as the phase difference to determine the subject's distance from the camera. It's a very accurate system in most circumstances, but struggles in certain situations, such as when working with low-contrast subjects or photographing in low-light conditions.

Choosing multi-point or single-point AF

How you select all or only one AF point differs greatly from camera to camera. We've highlighted how to do it on four popular brands

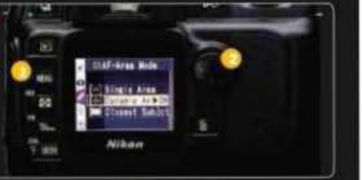
CANON EOS DSLRS

Press the focus point button then SET to select between using all points or only one. If you choose manual selection, use the four-way control and SET to choose the AF point



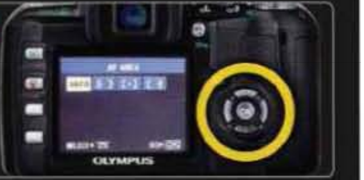
NIKON DSLRS

Press MENU, use the four-way control to choose the pencil icon, then go to the AF-Area Mode. Press right to view the three options, select one and press right to set



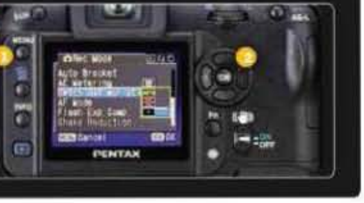
OLYMPUS E-400/410/420

Press OK and use the four-way control to select the AF points icon and press OK again. Select the AF area you want to use and press OK



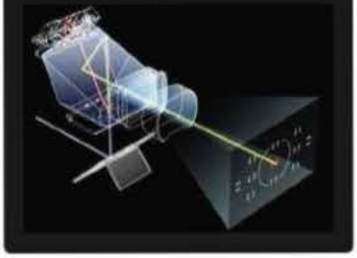
PENTAX K100D/K200D

Press MENU and scroll through the Rec. Mode menu to **Swtch dst msr pt**. Press right on the four-way control to view the options, choose one and press OK to set



Multi-point AF

Your SLR has an autofocus system that boasts a number of sensors arranged around the central AF point. Most, though not all, viewfinders show a black outline of the focusing points so you know where they are. When you focus, the active AF point, ie the one that has focused on the subject, usually lights up red on the screen. Sometimes, if more than one AF point locks on to the subject, you'll see a number of AF points light up at the same time – this isn't a fault, but means that the camera focused on several parts of the subject at once, eg the wall of a building or a distant landscape.



WHEN TO USE MULTI-POINT AF

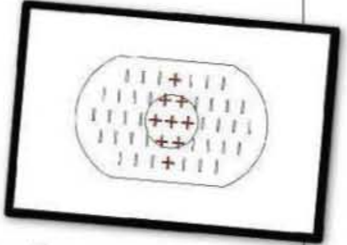
You can leave the camera set to multi-point AF for most shooting situations. You'll find that the AF system will focus on the closest subject to the camera as this is normally the one that you want in focus.

While suitable for general use, there are two main advantages of multi-point AF. The first is for composing a scene and focusing on an off-centre subject in one hit, whereas in the past, you had to focus the subject in the central point of the frame and then recompose the image. The second major advantage is when shooting moving subjects, as you can have all the AF sensors active and have the various AF sensors track the subject.

Using multi-point AF allows you to quickly grab a shot of an off-centre subject. In this case, it meant capturing this cheeky grin.

Inside AF: Main types of AF sensors

There are two main types of autofocus sensors, known as cross-type and line sensors



Cross-type sensors are the most sensitive and offer the best performance. They boast a vertical and horizontal axis that allows for faster and more responsive AF. You'll normally find that only the central AF point uses a cross-type sensor, although more highly-specified models may use cross-types in a few of the AF points in the central area of the frame. Line sensors are the most common type and are used on the majority of AF points. These measure across a single plane and while accurate and suitable for most situations, cannot match the sensitivity of the cross-type sensor, especially in low light situations and when tracking moving subjects.

PRO TIPS

IMPORTANT POINT!

Regardless of which AF mode you select, the autofocus system is activated when you press the shutter button down halfway and stays engaged until you release the shutter button

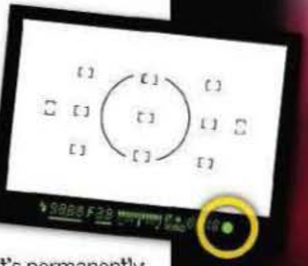
DANIEL LEZANO

When to switch to single-point AF

Sometimes it is better to switch from multi-point AF to single-point AF. Why? Well, occasionally, you'll find that the subject you want to focus on is quite far away and when using multi-point AF, the camera keeps focusing on objects nearer to you. This is often the case with portraits when you want to focus on the eyes, but it's the nose that the camera keeps locking on to. You'll also find that you may be shooting a subject where the area you want to focus is always positioned behind a particular AF point, so it makes sense to keep this AF point active. For instance, you may have the camera on a tripod and are trying different colour backdrops for close-up shots of a flower and want to focus on a particular petal for all the shots. Finally, you'll find the extra sensitivity of the central cross-type sensor means shooting action using the central point only is a popular technique used by many experienced sports photographers.

DANIEL LEZANO

Autofocus modes



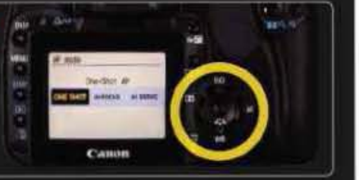
YOU'LL FIND THAT your camera offers you a choice of autofocus modes. There are normally three options, one for focusing on a static subject, one for focusing on a moving subject and a third that's a hybrid of the first two. We'll show you when to use each shortly. One thing to note is the AF viewfinder icon (usually a circle) in the viewfinder. If it's permanently lit, the AF has locked on to the subject, if it's blinking it indicates the AF cannot focus on the subject. It can also be used to assist with manual focusing – when the subject is in focus, the icon will appear.

How to set the AF mode you want to use

Here's how to select the AF mode on a selection of DSLRs

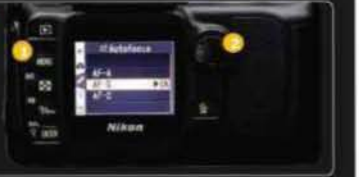
CANON EOS DSLRS

Press the AF button on the right of the four-way controller, press left and right to select the mode you want to use and then press SET



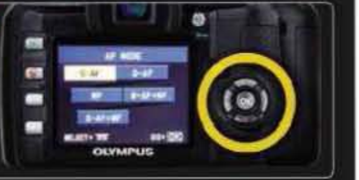
NIKON DSLRS

Press MENU, use the four-way controller to choose the pencil icon, then select the Autofocus option. Press right to choose one of three options, press right to set



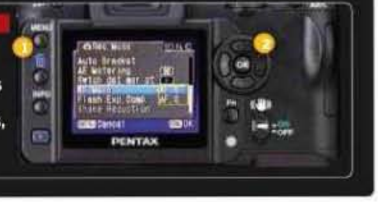
OLYMPUS E-SERIES DSLRS

Press OK and use the four-way control to select the AF mode icon, select the AF mode you want to use and then press OK to set it



PENTAX K100D/K200D

Press MENU and scroll through the Rec. Mode menu to AF Mode. Press right on the four-way control to reveal options, make your choice and press OK to set



1) Single-shot AF

CANON
ONE SHOT
NIKON & SONY
AF-S
OLYMPUS
S-AF
PENTAX
AF.S

This is the AF mode you'll most likely use for the majority of pictures you take. In this mode, once the autofocus locks on to the subject, it doesn't shift its focus, even if the subject distance changes. So, if you focus on a subject three metres away and either you or the subject moves so that the camera to subject distance is, say 3.5m, the lens will still be focused at 3m.

This makes this AF mode unsuitable for moving subjects, but it's a great choice in other ways. Its biggest benefit is that you can lock on to a subject and then recompose the image to suit. So, if for instance, you're shooting a scene and want to focus on a tree and then position it at the edge of a frame, you'd select this mode, focus on the tree, then recompose the frame while partly holding the shutter button down (see *Focus Lock*) before firing. In single-shot AF mode, the camera will not take the picture until the AF has locked on the subject.

Focus Lock

DANIEL LEZANO

Knowing how to use Focus Lock is essential to taking a perfectly focused shot in AF-S mode. The great thing is that it's very easy to do. Shutter buttons have a two-stage action – a gentle press engages the AF and metering, while fully depressing it takes the picture. It's the first stage where you can use Focus Lock – all you have to do is focus on the subject and keep applying gentle pressure on the shutter button to lock the AF. As long as you maintain pressure, the AF will not shift and you can recompose the frame and take the shot when satisfied with the composition. Remember, if you move backwards or forwards and change the distance between you and the subject, you'll have to repeat this process again, ie release pressure on the shutter button and then press it again.

PRO TIPS

AF-L (AF-LOCK)

Some of the more high-end cameras boast an AF-L button. You can use this to lock autofocus, so that pressing the shutter button activates the metering system independently of the focusing

For critical focusing, select a single AF sensor and position it over the exact point where you want to focus. With this image, the wide aperture meant a very shallow depth-of-field, so it was very important to get the focusing spot on.

JON BOWER

Q&A: Autofocus

I noticed my camera's specification lists an AF metering range. What is this?
This is the range of light levels that the camera's AF system works at and is normally stated as an EV (Exposure Value) range, such as EV 1-20.

What's an active AF system?
Many compacts use an active AF system that projects an infrared beam to measure subject distance. While accurate, its range is limited to a few metres.

Are interchangeable focusing screens available for DSLRs?
Some cameras offer you the option of changing the viewfinder screens to suit particular types of photography, such as for macro work. However, this feature is only available on the more expensive cameras and unless you're specialising in one type of photography, we'd suggest you stick to the standard screen.

Can you explain why there are variants of the same lens with different AF motors?
The focusing motors used in modern lenses offer fast and responsive AF. However, some of the leading brands have developed lenses with motors that offer an even better performance with quieter and faster focus. These lenses are normally only slightly more expensive than the standard version and are worth paying the extra for. Canon's USM (UltraSonic Motor), Nikon's AF-S Silent-Wave Motor and Sigma's HSM (HyperSonic Motor) are three examples.

AF assist

Many SLRs offer an AF assist lamp that provides additional light to aid a struggling autofocus system. It is normally located in the same housing as the integral flash or on the camera's front and automatically fires when light levels falls below a certain value. The AF assist lamp normally projects a patterned beam or a strobe for the AF to lock on and on some models can be switched off using custom functions.

Canon
EOS 30D

2) Continuous AF

CANON
AI FOCUS
NIKON & SONY
AF-C
OLYMPUS
C-AF
PENTAX
AF.C

When you're photographing moving subjects, you want to switch from single-shot to this mode. The major difference with this AF setting is that the autofocus system will constantly analyse the subject distance and make adjustments, so if the subject moves, the autofocus will shift position to stay focused on the subject. In this mode, you do have to take care because the shutter will fire even if the subject is out of focus. For general shots, using multi-point AF is the best choice, but if you're tracking fast moving action, such as motorsports, you might find switching to the central AF point improves accuracy.

PREDICTIVE AF
This is the term given to the continuous AF system used by many cameras. Predictive AF works by measuring the changes in subject distance over regular intervals (within fractions of a second) and uses this data to calculate where the subject will be when you take the shot. It has proven very accurate although it isn't so reliable if the subject continuously shifts direction or changes speed.

FOCUS LOCK ON
Some top-end professional DSLRs offer a function called Focus Lock-on. It's used when you're tracking a subject in multi-point AF and allows the camera to ignore any objects that pass in front of the subject while you're tracking it. For example, if you're tracking a car and your view of it is briefly blocked, the camera will ignore the obstruction and follow the car's progress when it reappears.

Pre-focus

This is a technique that was developed before the days of autofocus, but still has its uses today. If you're shooting very fast moving objects and you know where they will be passing, it's possible to pre-focus (using manual or AF) on a particular point on the ground, and fire the shutter as they reach it. It's a popular technique for motorsports and athletics where photographers have a fairly good idea where on a circuit the subject will pass.

3) Auto AF

CANON
AI SERVO
NIKON & SONY
AF-A

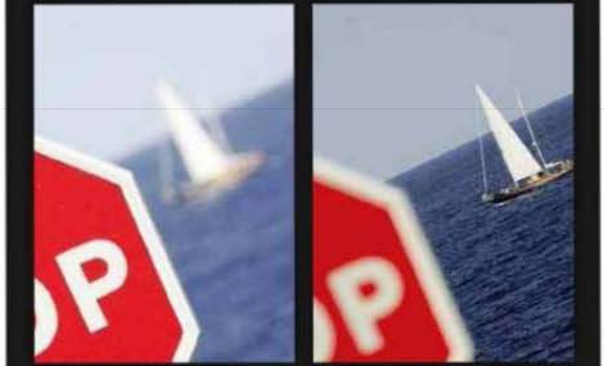
This mode is best described as a mix of the other two AF modes. When you first press the shutter button, it works in the same way as AF-S, locking the AF on to the subject. However, should the subject move, it detects this movement and switches to AF-C automatically. Now here is the thing that confuses some people. The camera only switches from AF-S to AF-C when it detects minor changes in focus distance, ie. the subject starts to move towards or away from the frame. However, if it detects a major change in distance it doesn't refocus. This is because such a big change is interpreted as the photographer using Focus Lock.

Auto AF mode is useful when shooting kids. It will lock focus when they're static, but automatically switches to continuous AF when they predictably start to move.

DANIEL LEZANO

Advanced technique: Differential focus

You can emphasise a particular part of the scene by combining sharp focus with a very shallow depth-of-field. The easiest way to achieve this effect is to shoot with a telephoto lens set to a wide aperture.



Creative use of where you focus can produce very different results and allow you to emphasise a particular subject.

DANIEL LEZANO

When you're following the trail of a fast-moving subject, switch to continuous AF, press down gently on the shutter button to engage the predictive focus and wait until you're happy before fully depressing the shutter button.

STEVE CRAMPTON

4) Manual focus

While autofocus systems are highly accurate and reliable, there are times when you may have to switch from AF to MF and focus manually. As well as the typical situations where AF struggles (see panel *Autofocus Problems*), the other occasion where you may find yourself using manual focus is when shooting close-ups. When working at very short focusing distances, especially when you're using a macro lens to shoot tiny subjects, it is critical that you focus on the correct part of the subject. While autofocus systems can work OK in these situations, you'll probably find it easier and quicker to use manual focus.

ROSS HODDINOTT

Autofocus problems

SHOOTING THROUGH GLASS

PROBLEM: The AF locks on to the glass

SOLUTIONS...

1) Try cleaning the glass because the AF locks on to any contrast, in this case marks on the glass

2) Shoot from as close as possible to the glass

3) Shoot at an acute angle, rather than at right angles, to bypass the glass

4) Focus manually

SHOOTING THROUGH A FENCE

PROBLEM: The AF pinpoints the fence or bars of a cage as its point of focus as its nearest

SOLUTIONS...

1) Switch to single-point AF and position the AF sensor between the fencing/bars

2) Focus manually

LOW LIGHT OR LOW CONTRAST SUBJECTS

PROBLEM: AF cannot lock focus

SOLUTIONS...

1) If shooting indoors, turn on the lights

2) Try to focus on a subject with most contrast

3) Focus manually

Understanding ISO ratings

The ISO rating stems back to the film era and knowing its origins will help understand how it works with DSLRs

WHAT DOES ISO STAND FOR AND WHAT DOES IT RELATE TO?

There's some history involved here, so bear with this explanation! ISO stands for International Standards Organisation and the ISO rating originally related to how the sensitivity of film emulsion to light was stated. In other words, it was a standard 'measure' of how sensitive film was to light. Up until the ISO rating was introduced, film speed was stated in various ways (ASA and DIN being the most commonly known) so having one universal standard made everything far more simple. Because sensitivity affects the exposure required for an image, ISO ratings were also termed 'film speeds' and described as slow, medium and fast – terminology that is still used with digital cameras. So, in summary, the ISO rating provided a measure of a film's sensitivity to light.

With the advent of digital cameras, the ISO ratings were retained, as it was a familiar system for photographers to work with, so that they could adapt their way of thinking by using the tried and tested ISO settings to work out the changes in 'sensitivity' of the sensor.

SENSOR 'SENSITIVITY'

When changing the ISO rating, it's natural to assume you're changing the 'sensitivity' of the sensor. But, you're not, instead you're changing the strength of the signal passing through the sensor, known as signal gain. The more gain, the more 'noise' (digital 'grain') in the image. However, most photographers prefer to think of the sensitivity changing rather than the strength of the signal, as it's an easier concept to comprehend

How do ISO ratings work?

The ISO rating, along with the shutter speed and aperture, plays a vital part in how the exposure is calculated. All three are linked together, so changing one has a bearing on the others. Every camera has a range of ISO settings, with ISO 100-1600 being the most common, and can be changed in increments of 1/3, ½ or one-stop steps. The most common ISO speeds are as follows:

Full stops	50			100			200			400			800			1600
1/3 stops		64	80		125	160		250	320		500	640		1000	1250	

Changing the ISO increments works in much the same way as that of shutter speeds and apertures, so going up a full stop (for example from 100 to 200) halves the exposure, while going down a stop (say from ISO 800 to ISO 400) doubles the exposure. The lower the ISO rating, for example ISO 100, the less 'sensitive' the sensor is to light and the more light that is required to give the correct exposure (through a longer exposure time and/or wider aperture). Because the exposure time is lengthened, setting a low ISO rating is also commonly described (in particular by ex-film photographers) as setting a slow ISO speed. Increasing the ISO boosts the signal travelling through the sensor and effectively increases the 'sensitivity', meaning that a faster shutter speed and/or smaller aperture gives the correct exposure. Due to the reference to faster shutter speeds, setting higher ISOs are often referred to as using faster ISO speeds. So if someone says they've set a slower or faster 'film speed', you now know what they mean!

DAVID HIRST

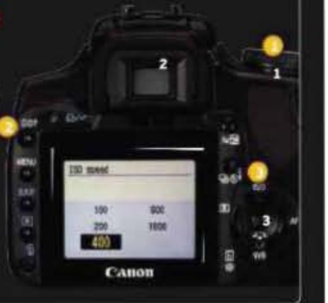
When shooting moving subjects, you can use the ISO rating to help give you the shutter speed you need to either freeze motion or record it as a blur.

Setting ISO ratings on your DSLR

While it may take a little time to understand how ISO ratings work, actually changing the ISO ratings or 'speeds' is very easy to do!

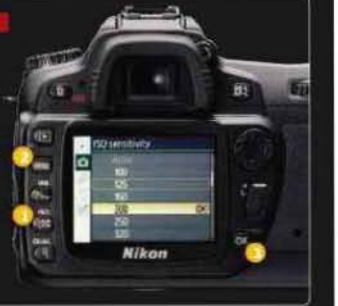
CANON EOS 400D

1) Set the main control dial on the right-hand side of the top-plate to one of the creative modes (P, Tv, Av, M or A-DEP). If the dial is set to one of the other modes, Auto ISO is used
2) Press the DISP. button to activate the LCD if it's off
3) Press the top button on the four-way control to activate the ISO speed, using the up or down buttons to select the ISO you want and then press SET



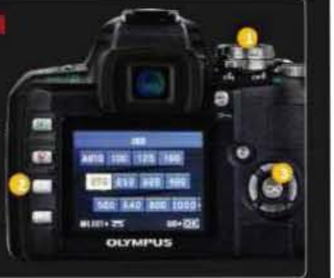
NIKON D80

There are two ways to set the ISO rating on the Nikon D80.
1) The quickest way is to press the ISO button and rotate the rear dial: the ISO shows up on the top-plate LCD. Or you can:
2) Press the MENU button, choose the GREEN SLR tab and scroll to ISO sensitivity
3) Press OK, choose the ISO speed you'd like to use and then press OK to confirm



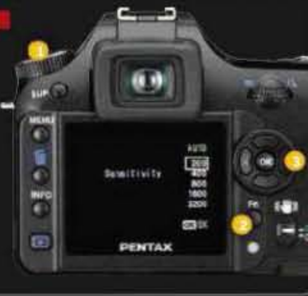
OLYMPUS E-400/E-410

1) Set the main control dial on the right-hand side of the top-plate to whichever mode you'd like to use
2) Press the MENU button and scroll down to the ISO tab
3) Press OK, choose the ISO speed you'd like to use and then press OK to confirm



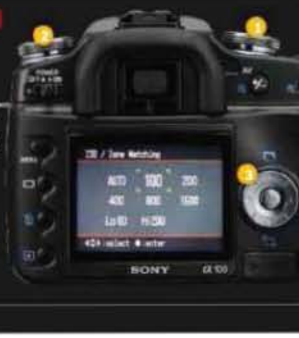
PENTAX K100D/K200D

1) Set the main control dial on the left-hand side of the top-plate to whichever mode you'd like to use
2) Press the Fn button on the back to display a 'virtual' four-way control on the LCD
3) Press the right button to display the Sensitivity list, scroll to the ISO speed you would like to use and press OK to confirm



SONY ALPHA 100

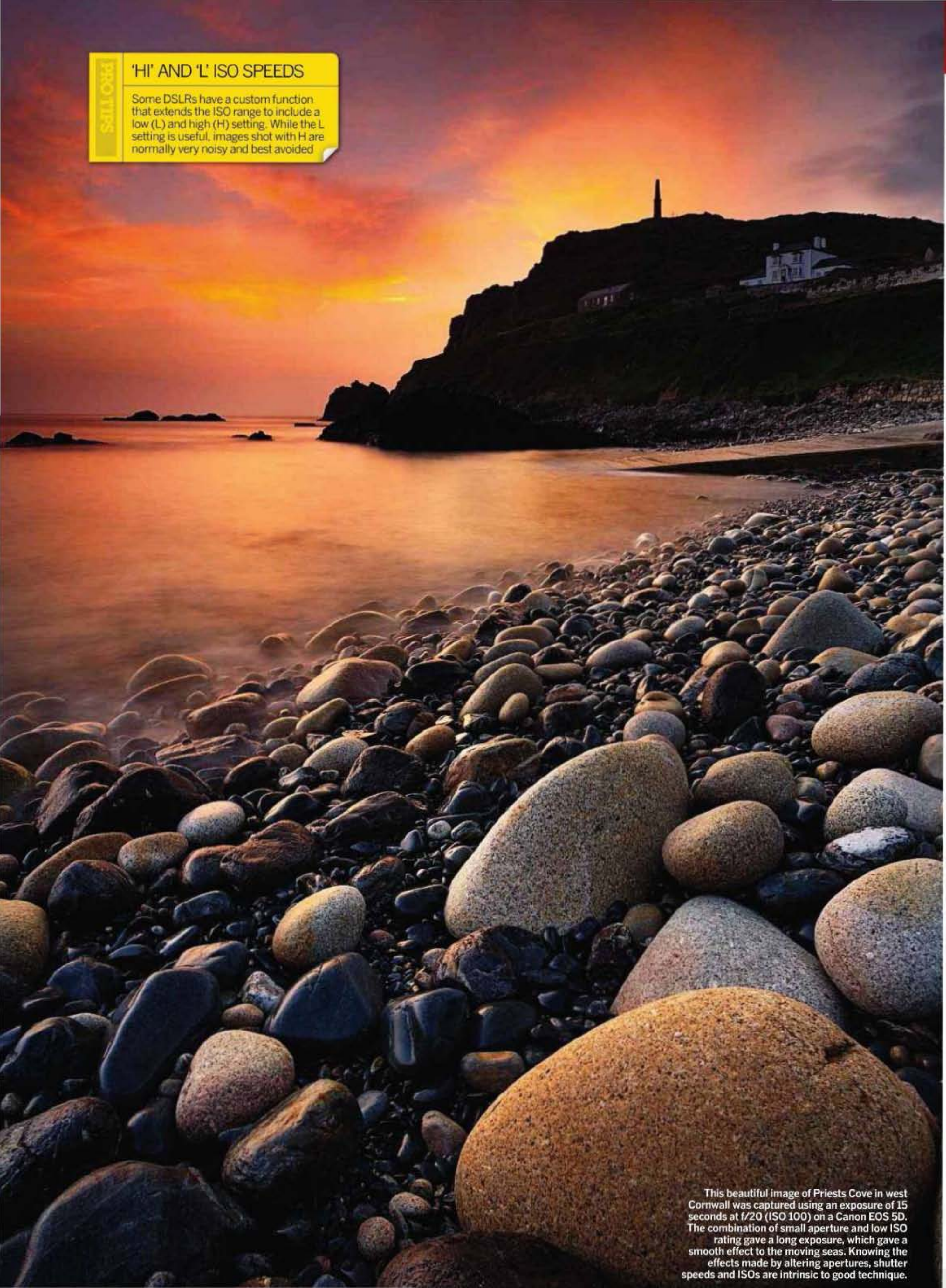
1) Set the main control dial on the right-hand side of the top-plate to whichever mode you'd like to use
2) Set the dial on the left-hand side of the top-plate to ISO and then press the central Fn button to display the ISO speeds on the LCD
3) Use the four-way control to scroll to the ISO speed you'd like to use and press the AF button at its centre to confirm



PRO TIPS

'HI' AND 'L' ISO SPEEDS

Some DSLRs have a custom function that extends the ISO range to include a low (L) and high (H) setting. While the L setting is useful, images shot with H are normally very noisy and best avoided



HELEN DIXON

This beautiful image of Priests Cove in west Cornwall was captured using an exposure of 15 seconds at f/20 (ISO 100) on a Canon EOS 5D. The combination of small aperture and low ISO rating gave a long exposure, which gave a smooth effect to the moving seas. Knowing the effects made by altering apertures, shutter speeds and ISOs are intrinsic to good technique.

PRO TIPS

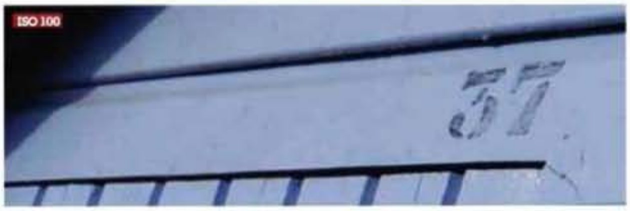
NOISE PERFORMANCE

Every generation of digital SLR sees an improvement in the reduction of noise in images, in particular at very high ISO ratings. The top ISO rating currently available is a staggering ISO 102,400!

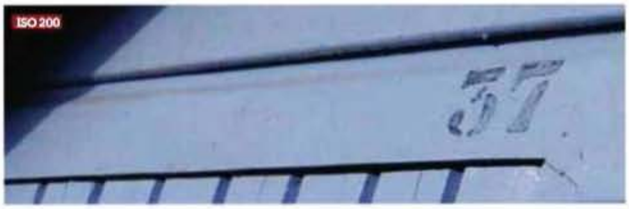
ROSS HODDINOTT

ISO comparison from ISO 100-6400

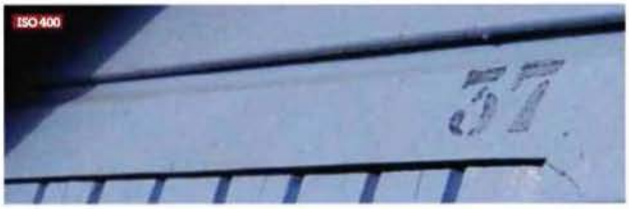
The scene above was taken at different ratings from ISO 100 to 6400 on a tripod-mounted Nikon D300, fitted with a Sigma 10-20mm wide-angle zoom set to f/14. As you can see from the magnified portions, there is very little difference in the quality at lower ISO speeds but as you reach the higher speeds, noise progressively becomes more evident, sharpness starts to drop and colours lose saturation and accuracy. The Nikon D300 is one of the best at shooting at higher ISO speeds, so if you've an older DSLR, you'll probably find quality differences are even more exaggerated.



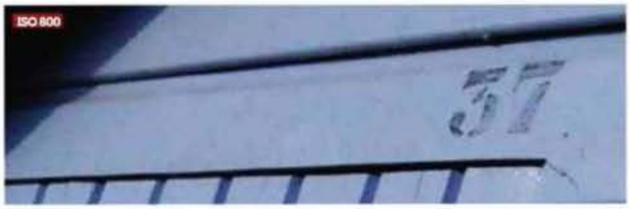
ISO 100



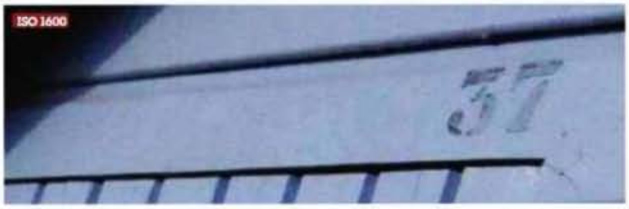
ISO 200



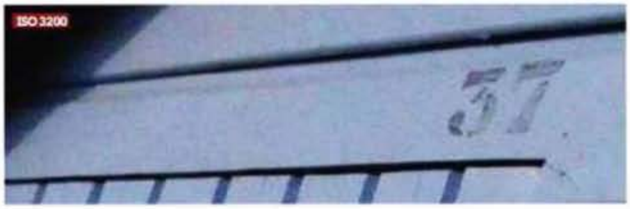
ISO 400



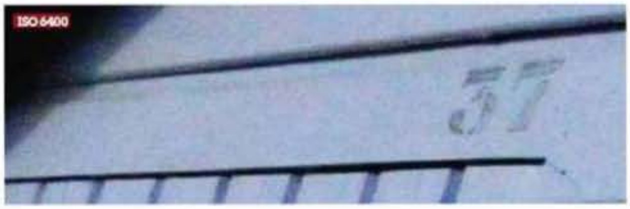
ISO 800



ISO 1600



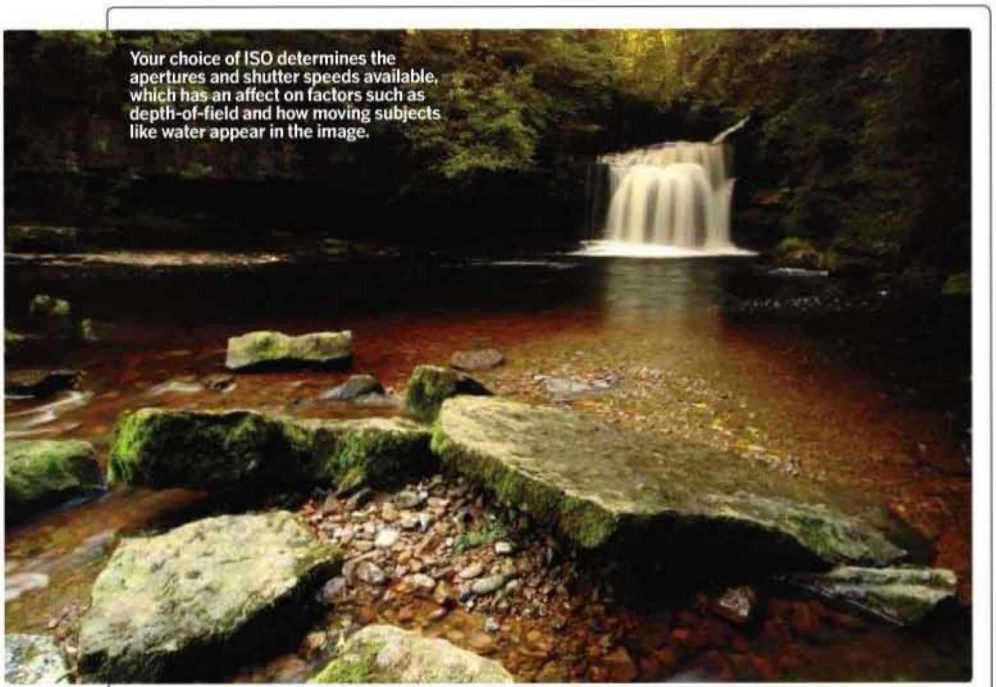
ISO 3200



ISO 6400

How can understanding ISO ratings make you a better photographer?

The choice of ISO rating you use has an enormous impact on the final result of your images. Its main influence is that it will affect what combinations of apertures and shutter speeds are available to you, for instance, in low light, increasing the ISO can allow you to choose a shutter speed for handheld photography that isn't available at a lower ISO speed. It also has a big say in overall image quality, with noise (digital's equivalent to film grain), colour reproduction and contrast all being affected by the ISO rating you choose. Ultimately, it influences every single image you take as it has a direct association with shutter speeds and apertures when determining the exposure, so you can't afford not to understand it if you really want to progress your photography.



Your choice of ISO determines the apertures and shutter speeds available, which has an affect on factors such as depth-of-field and how moving subjects like water appear in the image.

JAMES PAUL

So how does the ISO rating affect the exposure?

As we've mentioned, the ISO rating is used along with the shutter speed and aperture to give the correct exposure. What you should set the ISO to depends on the situation, the lighting and the effect you're trying to achieve, and this knowledge will come through practice and experience. Understanding the fundamental rules of exposure will help you know what to set.

Your DSLR has a set shutter speed range (most have between 30 seconds to 1/4000sec) and your lens will have a choice of apertures. When you're taking pictures, you'll have many of these available to you and by changing the ISO rating, you will be able to vary your selection.

For any given situation, using a low ISO rating (e.g. ISO 100) will mean that you'll have to set longer exposure times, wider apertures, or a combination of both. Setting a fast ISO (e.g. ISO 1600) means you can use faster shutter speeds, smaller apertures or a combination of both. Use a medium ISO speed like ISO 400 and you'll have apertures and shutter speed options between these two extremes.

What you set really depends on your subject, the amount of available light and the effect you're trying to capture. There are no hard and fast rules and as already mentioned, experience (and studying other photographers' images) will help you to grasp the basics.

What you need to get used to thinking about is determining which ISO is best suited for what you're trying to shoot. For instance, if you're handholding the camera and using a long telezoom, you should know that you'll need to keep the shutter speed quite high to avoid camera shake, so raising the ISO allows for a faster shutter speed at a given aperture. If your camera is on a tripod and shake isn't a problem, then you can set a lower ISO. Within this guide, we'll look at the most common shooting scenarios and provide essential advice on how to set your ISO ratings to deliver the best possible results. Once you've read this guide, we'd strongly recommend that you spend a couple of hours shooting a couple of scenes at different ISO ratings to see the affect it has on apertures and shutter speeds. In particular, try it out in very bright and quite dim lighting conditions and see how changing the ISO rating allows you to choose shutter speeds and apertures not available at other ISO speeds and which could be the difference between a decent image and a poor one.

ISO speeds: Pros & Cons

It's vital that you understand that the different ISO ratings each have their own advantages and disadvantages. As you'll discover, there is no one ISO rating that is perfect for every situation, but knowing when to use a slow, medium or fast ISO will allow you to optimise your camera settings to provide the very best results. Here we briefly outline the main pros and cons of the different ISO speeds.

LOW ISO RATINGS (ISO 50-200)

✓ Main advantages

Using a slow speed allows you to get the very best image quality from the sensor. Colours will be at their best, as will tonal reproduction. And noise will be minimal, too. It's also a good choice when you want to blur moving subjects, such as the sea when shooting coastal landscapes.

✗ Main disadvantages

Camera shake may be a problem when handholding because the low ISO means that, in anything other than bright conditions, the shutter speed will be slower. If this happens, the slower shutter speed will blur any of the image's moving subjects, which may not be the effect you're after. And because you have to use wider apertures to let in more light, you may find depth-of-field is limited.

? Who usually uses low ISO ratings?

Photographers looking for the ultimate quality and use slow shutter speeds to often enhance their pictures. Landscape photographers are the perfect example.

MEDIUM ISO RATINGS (ISO 250–400)

✓ Main advantages

Image quality is very similar to lower ISO ratings, but you've the benefit of being able to use faster shutter speeds and/or smaller apertures.

✗ Main disadvantages

Colours may not be as accurate or as saturated (but this may be very hard to tell with more recent DSLRs)

? Who usually uses mid-ISO ratings?

It's a versatile rating that is ideal for general photography and is a good starting point for beginners.

FAST ISO RATINGS (ISO 500 upwards)

✓ Main advantages

Allows you to handhold your DSLR in low light. It also allows you to set fast enough shutter speeds to freeze moving subjects in low light. Using a very high speed to deliberately add grain is a common technique for adding mood, especially when converting images to black & white.

✗ Main disadvantages

The faster you go, the lower the image quality, with main problems being an increase in noise, less realistic colours and a loss in overall sharpness.

? Who usually uses fast ISO ratings?

Low-light photographers who need fast enough shutter speeds to prevent camera shake. Also popular with sports photographers needing to freeze action.

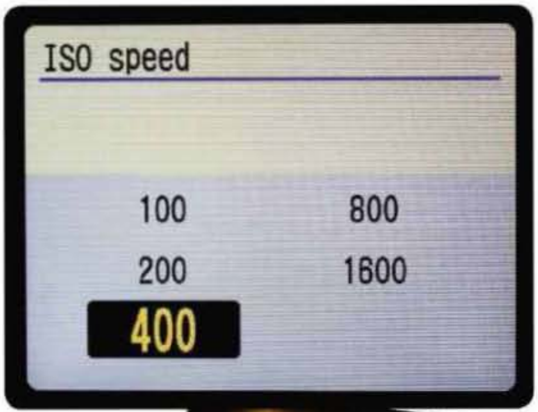
ISO and general photography

So you're out and about shooting anything that catches your eye; some scenics, a few candids, the odd architectural image. How should you determine which ISO to use? Daniel Lezano explains how he considers which ISO to set when the subjects he's shooting are constantly changing

I'VE BEEN TAKING pictures for around 25 years now, so I have had plenty of practice when it comes to getting my head around ISO ratings! And, as anyone who learned the ropes using film will testify, the ISO rating was far more of a consideration then than it is today. Why? Well in the 'old days' of film photography, you had to decide the ISO you were going to use before you loaded up the camera, because each film had its own ISO rating. The luxury of being able to change ISOs before each shot didn't exist. Instead, you were stuck to a particular 'film speed' for 24 or 36 frames. Looking back, this constraint was a great 'fast-track' method for getting to grips with ISOs, as you had to really give the ISO some thought before buying/loading your film. If I was out for the day shooting landscapes, I'd use ISO 50 or ISO 100 for the best quality, while for general photography and for flash, ISO 200 or 400 gave more flexibility. I only loaded with ISO 800 or higher when I knew that I was handholding in low light and had no option but to sacrifice on quality to get the extra speed that was need to give decent shutter speeds.

I've carried this ISO-philosophy over into how I shoot digitally and have found that it works pretty well. When I want the best possible quality, I'll use as low an ISO as I can get away with and I'll only up the speed if there is the risk of camera shake when handholding the camera. That said, I'm far happier to use speeds of ISO 400-800 then I ever was with film and each new wave of DSLRs seem to raise the bar in terms of high-ISO quality. However, I'll still always try to avoid going above ISO 800, as that's when noise becomes evident and sharpness suffers.

Towards the end of my time with film, I found I was often using ISO 400 as my general-purpose speed as emulsions had got so good. I have to say that I've carried this working practice over to digital. The quality of ISO 400 on DSLRs is near-indistinguishable to lower speeds (unless making enlargements) and the extra two stops compared to setting ISO 100 is invaluable for a variety of situations, such as shooting on-the-spot portrait opportunities, or handheld scenes on a typically muggy British day. I'll drop to ISO 100 on bright days or when using a tripod, unless this risks subject blur through movement, such as trees blowing in the wind, but usually stick to ISO 400. So, if you want the 'wisdom' of a couple of decades of trial and error, start out at ISO 400, drop down to ISO 100 when using a tripod or on very bright days and bump it up to ISO 800 when you're shooting in dim conditions.

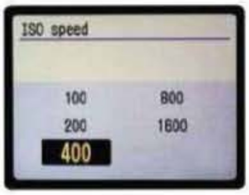


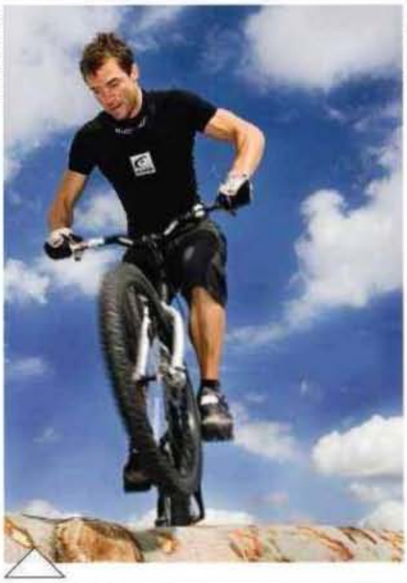
ABOVE: You have to start somewhere and for general photography, ISO 400 is a good choice, as it offers extra speed with minimal loss in quality.

RIGHT: When you're shooting in low light, your choice of ISO will vary. If you're using a tripod, you can afford to set a low ISO but if handholding, you're best setting a fast ISO such as ISO 800.

JAMES LOVELL

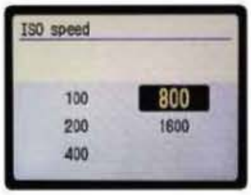
GENERAL The extra speed of ISO 400 compared to ISO 100 means that you're more likely to have a shutter speed that allows for handheld photography.





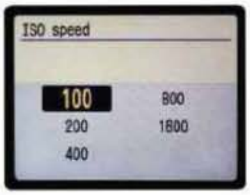
DAVID HIRST

FAST ACTION Shutter speeds need to be as high as possible so a fast ISO like 800 or 1600, as well as a wide aperture, will freeze moving subjects.



BRIAN GOLDIE

STILL-LIFE When you want the best possible quality, and camera shake or subject movement isn't a problem, then set the lowest possible ISO.



Expert advice from pros on picking the best ISO rating

Four experts shed some light on selecting the right ISO for landscapes, studio work, portraits and nature

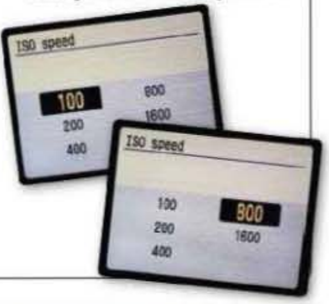
ISO ratings and nature

Nature snappers regularly have to contend with poor lighting conditions and subject movement. While a fast shutter speed is essential to freeze movement and eliminate camera shake, which is a real problem when using a telephoto lens handheld (a tripod is often impractical), I have to compromise on an exposure that allows me to shoot during dawn's low light.

I'm not a fan of flash either, especially when shooting close-ups, as it can destroy the natural feel. So, I gain the extra speed by raising the ISO. I try not to use speeds upwards of ISO 800 as, although signal noise has been greatly improved at higher ISOs, it does grow more visible. An ISO 400 is usually sufficient, especially when combined with an image stabilised lens. While I always recommend using the lowest ISO rating possible, don't be wary of increasing it even if it's at the sake of image quality. A slightly noisy image is nearly always preferable over a blurred one.

By Ross Hoddinott

Nature photography often requires the ISO to be raised to help provide depth-of-field or prevent shake with telephoto lenses. ISO 400 is usually the best for sharp results.



ISO speed
100 800
200 1600
400

ISO speed
100 **800**
200 1600
400

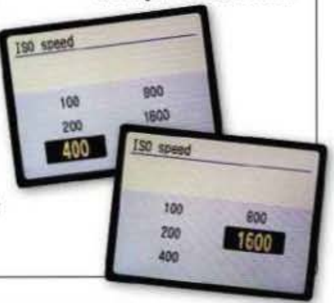
ISO ratings and portraits

When I'm shooting portraits, the thought at the forefront of my mind is depth-of-field. So, for whatever subject I'm shooting, whether it be weddings or babies, I know the optimum aperture I want to set. Therefore, I constantly change the ISO rating to ensure I have a workable shutter speed for the shooting conditions and to avoid camera shake.

If I'm photographing a single person or a baby I normally use the widest aperture I can to get a minimum depth-of-field, so I get away with a very low ISO. Whereas, if I'm shooting a couple, I'll need more depth-of-field (f/5.6), so need at least a medium speed of ISO 400, while at weddings I use ISO 1600-3200 for versatility. Sure there will be more noise, but I'd rather have a noisy sharp shot than a blurry one, and so would my clients. As a rule-of-thumb, if conditions are dark, I'll bump the ISO rating up and when it's bright I'll knock it down. It's a system that has never let me down!

By Brett Harkness

Shooting portraits presents many different challenges and lighting conditions, so I'm constantly changing the ISO rating to give me the depth-of-field I need.



ISO speed
100 800
200 1600
400

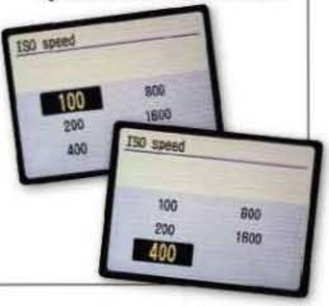
ISO speed
100 800
200 **1600**
400

ISO ratings and landscapes

As a landscape photographer, image quality takes precedence over flexibility, so I try to opt for a small aperture and keep the ISO to 100. This invariably results in slow shutter speeds, but with my tripod-mounted DSLR camera shake is rare. Similar to water, plants shot on a windy day can benefit from slow shutter speeds as it creates movement in an image. But when capturing wildlife in landscapes, I try to keep animal as sharp as possible, while also retaining maximum depth-of-field. The small aperture needed to keep front-to-back sharpness means the only parameter open to me to stop movement of the animal is by raising the ISO rating. In these cases, I tend to increase it to between 200 and 400; enough to give a faster shutter speed while keeping noise to a minimum. At the end of the day, landscape photography is about keeping a balance between the highest quality image and the most aesthetically pleasing effect.

By Adam Burton

Landscape photographers will normally aim for the maximum quality and plenty of depth-of-field and so set a low ISO. Long shutter speeds add a nice blur to water.



ISO speed
100 800
200 1600
400

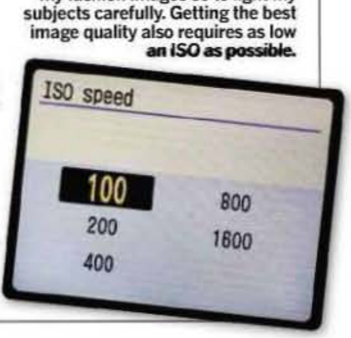
ISO speed
100 800
200 1600
400

ISO ratings and studioflash

When I'm shooting portraits or fashion images, I'll try to use the lowest ISO to retain all-important image quality and accurate skin tones. The beauty of studio lights is you can alter the power of the flash heads to suit your requirements. If you're outside on a dull day and want maximum depth-of-field, you would end up having to use a long shutter speed to get a small aperture, forcing you to up the ISO. With studio lighting, you don't have this problem; you really can have your cake and eat it. You can use a low ISO rating, narrow aperture and a fast shutter speed, providing you have flash heads with a decent amount of power. A rating of 300w/s is normally fine for portraits. The only time you may find yourself having to raise the ISO speed is when your flash heads aren't delivering enough power because they're heavily diffused, such as soft boxes, or you want to balance flash and ambient light, which will often reduce your shutter speed.

By Matt Henry

I take great care with my studioflash outfits when setting up my fashion images so to light my subjects carefully. Getting the best image quality also requires as low an ISO as possible.

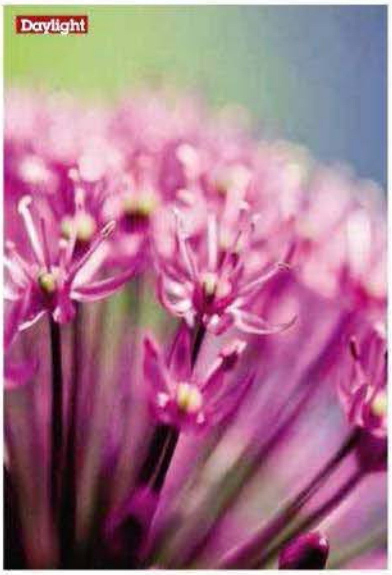


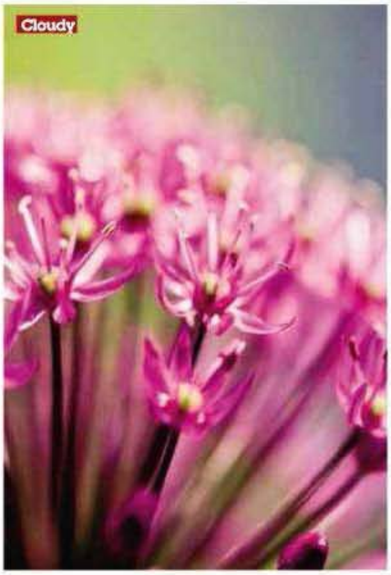
ISO speed
100 800
200 1600
400

White Balance

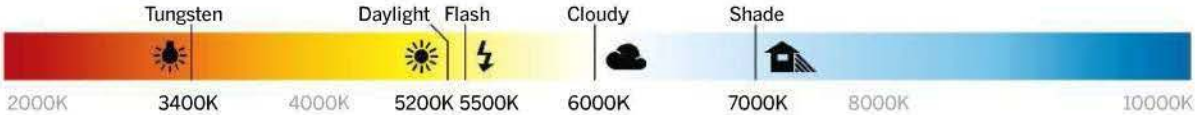
Your camera's sensor is very sensitive to the colour temperature of light, and it's the White Balance setting that helps with colour reproduction

YOU'LL HAVE PROBABLY noticed that daylight can appear warmer or cooler at certain times of day, or season, and that some artificial light sources produce a colour cast. This is because light has what is known as a colour temperature, measured in Kelvins, which can have a major effect on how accurately colours appear in your images. Digital SLRs have a White Balance (WB) facility that allows you to set the sensor's sensitivity to a particular Kelvin rating so that you can shoot images without any colour cast. Using it correctly will ensure accurate colours in your shots.





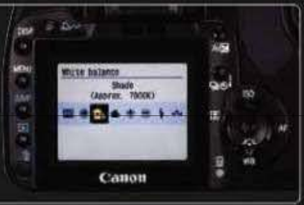
KELVIN SCALE This scale indicates the range of colour temperatures and the Kelvin rating of the main White Balance presets, (it's worth noting that these temperatures may vary from model to model). The Kelvin scale runs from warm to cool, with the Kelvin value increasing as the light



How to set the White Balance

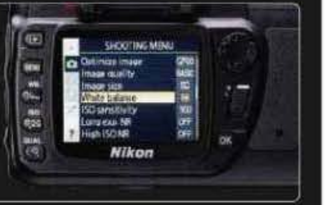
CANON EOS DSLRS

Press the button marked WB (often it's the down button on the four-way control. Select the White Balance setting you want to use and press SET



NIKON DSLRS

Press MENU, use the four-way control to select the 📷 icon, then go to White Balance, press OK to show the various settings, select the WB setting you want and press OK twice



OLYMPUS E-SERIES DSLRS

Press INFO to bring up the LCD display, press OK, select the White Balance icon, press OK, select the one you want to use and press OK again

F11
OLYMPUS

PENTAX K100D/K200D

Press Fn, then press left on the four-way control, select the White Balance setting you want to use and press OK to set it

White Balance
Cloudy
PENTAX

AWB (AUTO WHITE BALANCE): The camera evaluates the scene and sets its own White Balance accordingly. It's a good choice for beginners, but you should think about setting the appropriate preset for the lighting conditions you're shooting in whenever possible, as it will give the most accurate colours. The value for Fluorescent light varies because the colour temperature given off by fluorescent tubes can be different. Some cameras, in fact, have three settings to balance these different types of fluorescent light. With Custom, you set the White Balance by following your digital SLR's preset procedure – it's a good choice when shooting in mixed lighting.

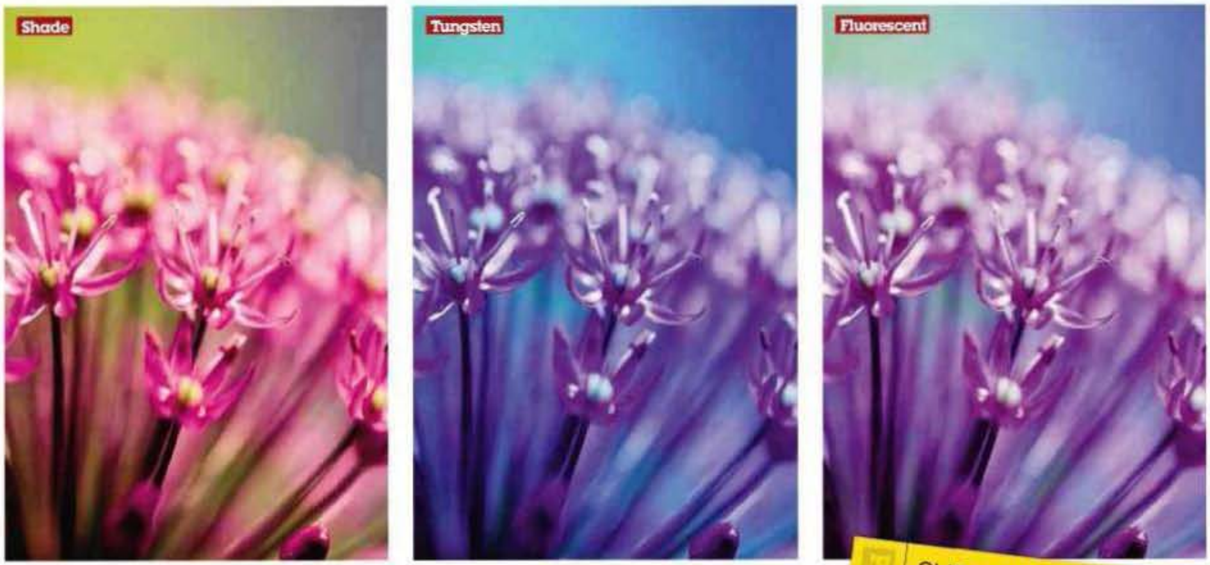
WHITE BALANCE BRACKETING Some cameras allow you to bracket the White Balance of your exposures. This fires an image at the White Balance preset you have selected, then another frame that's slightly warmer and another that's cooler.

SETTING THE WRONG WHITE BALANCE! You'll find that setting an incorrect White Balance for a given lighting condition can give interesting results. For instance, setting Daylight when shooting indoors in artificial (tungsten) lighting will give a strong orange cast; setting Shade or Cloudy in bright sunlight will give a warmer tone, while setting Tungsten in daylight will give a cool, blue cast.

White Balance Accessories

expodisc
Professional Digital White Balance

You can use the Custom preset to set an exact White Balance by using a white surface or grey card (depending on your DSLR) as a benchmark. An alternative is to buy a custom-made disc that is placed in front of the lens to take a White Balance reading from. The advantage is that it's small enough to keep with you everywhere you go. We'd recommend you look at the ExpoDisc (www.flaghead.co.uk) or obtain a cheap and cheerful grey card from your local photo retailer.



We shot an image in Raw on a sunny day and then converted it into five different White Balance settings to show how the colours will vary. Note that while inaccurate, the effects can be pleasing!

PRO TIPS

SHOOT IN RAW

One of the benefits of shooting in Raw is you can alter an image's White Balance when you open it in Photoshop (or Raw converter software) to whatever Kelvin rating you like

It's worth experimenting with different White Balance settings. Leaving it set to Daylight when shooting in tungsten-lit conditions can produce images with a warm orange cast that enhances the result.

TIM GARTSIDE

Image quality

When you take pictures, you can save them as Raw files and/or JPEGs. Each file format has its own advantages and disadvantages, which are covered here

Raw The Raw file has often been described as a 'digital negative'. This description relates to how the image has been captured in its purest digital form, with no image processing applied. Shooting in Raw is a little more involved than shooting in JPEG and because the files are not compressed, it takes longer for the image to be transferred to the card. Also, you'll find that unless you have compatible software, you won't be able to open or manipulate the image in the same way that you can with JPEGs. However, when you come to open a Raw file, you'll find that you'll be presented with several options to 'tweak' the image before it's opened. For instance, if you've set the White Balance to Tungsten when shooting in daylight and all your images have a strong blue cast, don't worry, you can set the White Balance to Daylight on the software and instantly correct the error. You're also able to work on other parameters like sharpness, contrast and exposure, so shooting Raw does give you more fall-back options should you make any mistakes.

THE ADVANTAGES OF RAW

- ✓ The best possible quality
- ✓ The opportunity to change parameters like White Balance and exposure
- ✓ You can work off the original and save as many variants as you like

DISADVANTAGES OF RAW

- ✗ Takes up more memory space
- ✗ Slower to process
- ✗ Requires compatible software to process

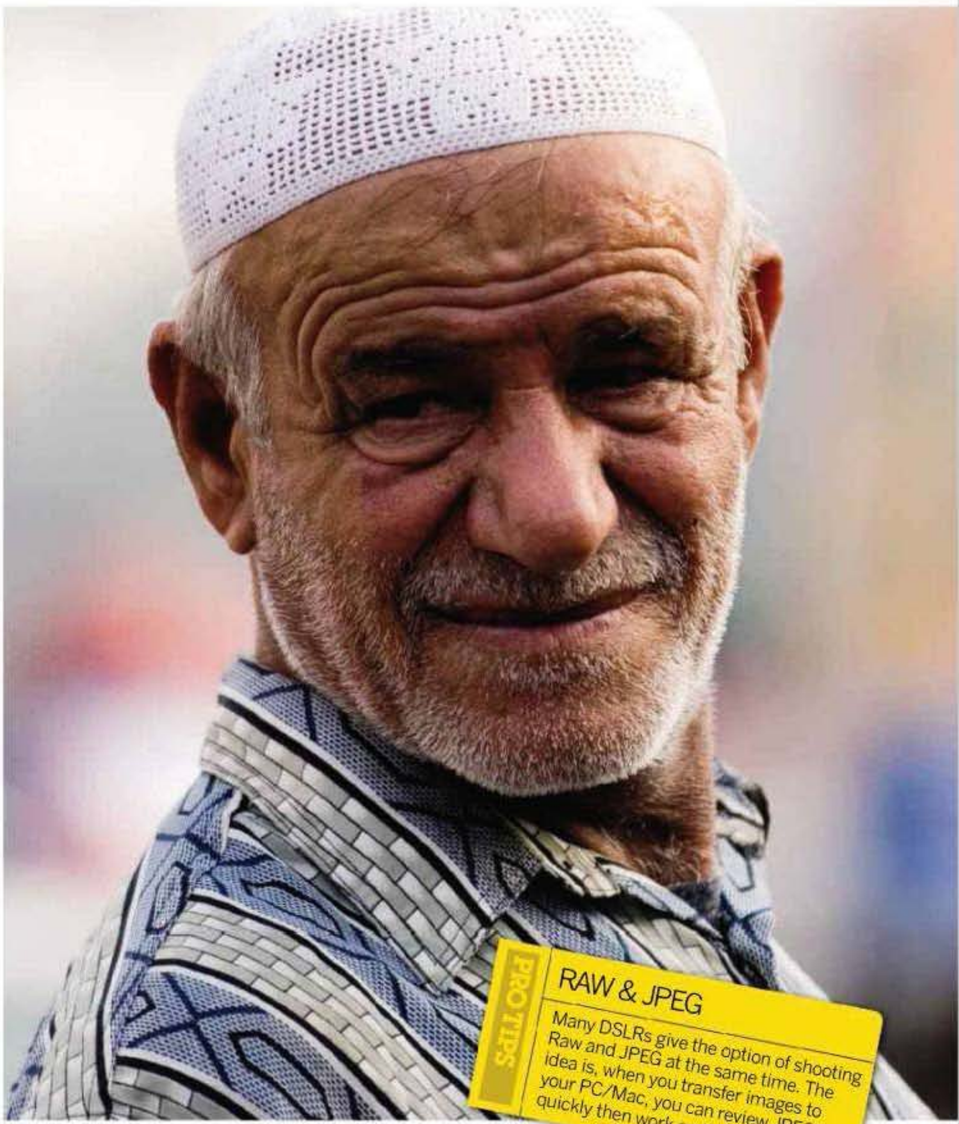
JPEG The JPEG (Joint Photographic Experts Group) is the most popular type of file format, due to its versatility. It's what's known as a 'lossy' format, which means that you lose some image information when you shoot in a JPEG format, as the file is 'compressed' so that it takes up less space on a memory card or computer. The amount you lose is up to you – you can decide this by the quality setting you apply on your camera and when saving the image on your computer. We'd recommend you always shoot at maximum quality, as you'll be hard pushed to notice any degradation of the image. Start increasing the compression and you'll discard more image information, degrading the final image and leading to unwanted 'artefacts' spoiling the final result.

THE ADVANTAGES OF JPEG

- ✓ Take up less memory, so you can fit more images on your card
- ✓ Faster read and write transfer speeds
- ✓ Smaller file size makes it easier to email

DISADVANTAGES OF JPEG

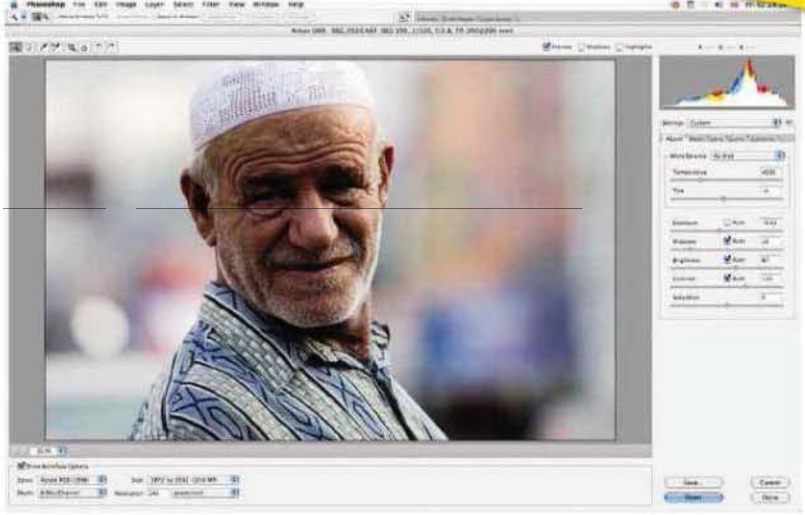
- ✗ Compressing the file can lead to image degradation
- ✗ If you mess up with something such as the White Balance or exposure, it's much harder to salvage the result

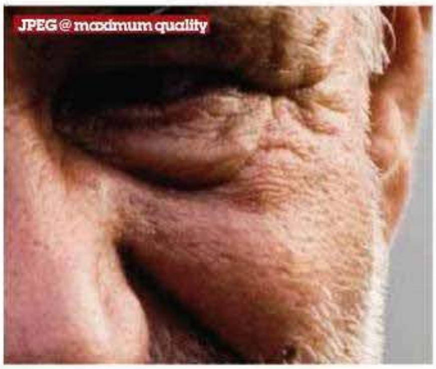


PRO TIPS

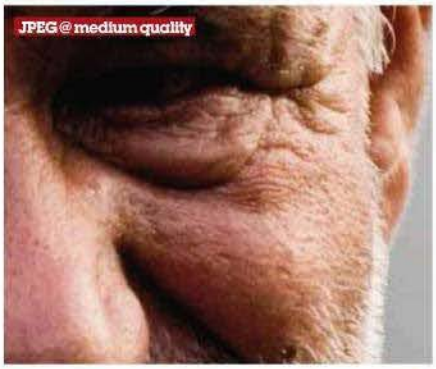
RAW & JPEG

Many DSLRs give the option of shooting Raw and JPEG at the same time. The idea is, when you transfer images to your PC/Mac, you can review JPEGs quickly then work on the Raw files

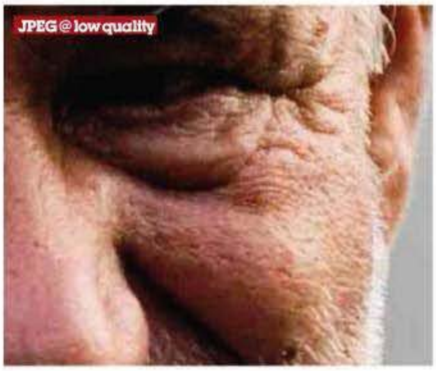




JPEG @ maximum quality



JPEG @ medium quality



JPEG @ low quality

How to set the image quality

CANON EOS DSLRS

Press MENU, use the four-way control and SET to select the first tab (📷1), then Quality, then choose from the selection of image sizes and compressions

NIKON DSLRS

Press MENU, use the four-way control to select the 📷 icon, then go to Image quality, press OK to show the various settings, select the quality setting you want and press OK

SHOOTING MENU
Optimize image
Image quality
Image size
White balance
ISO sensitivity
Long exp. NR
High ISO NR
Nikon

OLYMPUS E-SERIES DSLRS

You need to select the image size and compressions separately. To select image size, press INFO, press OK, select the quality icon, press OK, select the one you want to use and press OK again. To set the compression, press MENU, select 1, go right to the quality, then press right again. You can then choose the compression (as well as customise the pixel size). Press OK to set

A
F11
400
SQ
NO CARD
OLYMPUS

PENTAX K100D/K200D

You need to select the image size and compressions separately. Press MENU, select the Rec. Mode tab, go to Quality Level, press right, choose a setting and press OK. With JPEGs, you can then go to the Recording Pixels setting, press right, choose a setting and press OK

Rec. Mode
Image Tone
Recorded Pixels
Saturation
Sharpness
Contrast
PENTAX

Shooting in JPEG is very convenient and if you keep compression to a minimum, quality is excellent. Increase compression and quality drops.

Quality settings & image size

To get the best out of your JPEGs, size and compression are two important factors to be considered

IMAGE-SIZE OPTIONS When you're shooting JPEGs, you'll usually find yourself presented with two options that affect image quality. The first is to set the size of the image you'd like to capture, in other words the number of pixels that make up the shot. The settings available are usually stated as L, M and S (Large, Medium and Small) orin megapixels. Normally, you'll shoot at the highest rating to make full use of all of the pixels on the sensor (i.e. shoot a six-million pixel image if your DSLR has a six-megapixel resolution. But if you're shooting for web use, you might want to reduce the image size to make the files more manageable.

Camera	Maximum resolution *(best quality)*	Medium resolution *(medium quality)*	Lowest resolution *(lowest quality)*
Canon EOS 400D	L	M	S
Nikon D80	L	M	S
Olympus E-400	SHQ	HQ	SQ
Pentax K100D	6M	4M	1.5M

IMAGE-QUALITY OPTIONS The other quality setting relates not to image size but to the level of compression. For the best quality, always keep compression to a minimum and only choose one of the other options as a last resort if you're running out of capacity on your memory card. You'll usually find compression stated as an icon or worded as Best, Better and Good. Here's how quality settings are shown on four popular models:

Brand	Least Compression *(best quality)*	Medium Compression *(medium quality)*	Most Compression *(lowest quality)*
Canon EOS400D	◢	n/a	▟
Nikon D80	Fine	Normal	Basic
Olympus E-400	1 /2.7	1/4 or 1/8	1/12
Pentax K100D	☆☆☆	☆☆	☆

Understanding Raw

Getting to know what Raw files are and how they differ from JPEGs is an essential step towards improvement

WHAT DOES RAW MEAN?

Raw isn't a mode or a 'feature' that you'll find on your camera: it's the name given to the file format in which you record the image. Whether you know it or not, you'll most likely have been shooting and saving your images as JPEGs, a file format that provides a convenient way of recording lots of images quickly to your card. On your camera, you will have set your camera to shoot images as a JPEG by setting L (Large), M (Medium) or S (Small) or Fine, Normal or Basic. While JPEGs are great, there are added benefits to switching to Raw that you may be unaware of. And, if you've heard of Raw but were afraid of trying it because you thought it would be difficult to use, the truth is that shooting in Raw is hardly any different to leaving the camera set to JPEG. The main differences, and benefits, are evident once you have transferred your images to your computer.

DOES THE CAMERA BEHAVE DIFFERENTLY WHEN SHOOTING RAW?

Once you've set your camera to shoot Raw, rather than JPEG, you use the camera in exactly the same way as you would normally. The main difference you may notice (and varies from model to model), is it takes longer for the camera to write Raw images to the card than when shooting JPEGs (i.e. the little red light on the back of the camera stays lit for longer). This isn't a problem unless you're shooting fast sequences, in which case you'll see the frame rate slow down after a certain number of shots have been taken in quick succession. You'll also find that the camera is slower when reviewing images on the LCD.

You'll also notice the number of images you can shoot on a memory card reduces dramatically, because unlike JPEGs, the Raw files are not 'compressed', so each image takes up more space on the card. For example, if you're using a ten-megapixel DSLR, you can fit around 60 Raw files on a 1GB card, as opposed to over 200 highest-quality JPEGs.

WHAT ARE THE MAIN ADVANTAGES OF RAW?

Shooting Raw allows you to get the best quality images from your digital SLR. You're basically capturing a 'raw' image, without any camera processing or compression, so in effect, you have the purest possible image file that the camera can record. With JPEGs, the quality is influenced by in-camera processing via settings such as Sharpening, Colour Saturation and White Balance, which diminishes the quality of an image.

The main advantage of Raw is one that you'll discover once you've downloaded your shots onto your computer – Raw files allow you a level of flexibility in terms of simple image adjustments, such as changing White Balance settings, that shouldn't be underestimated. We'll cover all of these benefits in more detail later.

HAS IT ANY DISADVANTAGES?

Yes, there are the drawbacks mentioned earlier, namely the whole process of shooting in Raw takes a little more time. The camera takes longer to write images to the card and it also takes longer to copy images from the card to the computer, as well as filling your card up quicker because each image takes up more memory space. Also, you'll need to use software to open your Raw file before you can save it as a JPEG.

Fortunately, these drawbacks are relatively minor compared to the many benefits from using Raw.

WHEN IS IT BEST TO USE RAW?

We'd recommend you shoot in Raw whenever possible. So unless your cards are nearly full or you're shooting fast sequences, we'd say aim to shoot in Raw

Raw deal!

Each camera brand has its own form of Raw file. For example, Canon has .CR2 or .CRW, Nikon has .NEF and Pentax has .PEF. Each brand's Raw conversion software can only handle their own Raw files, however third-party software like Adobe Photoshop or Phase One can cope with all types of Raw files. Adobe has also produced a universal Raw file, called .DNG, but it still has some way to go to gain widespread support.

DSC_0082.NEF

IMGP0057.PEF

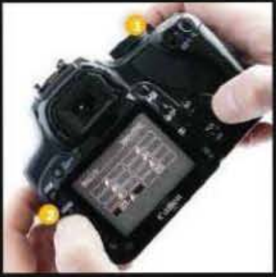
How to shoot Raw files on your DSLR

Setting Raw on your DSLR is very easy to do, so give it a try and see the difference it could make to your photography

CANON EOS 400D

(1) Switch the camera on and set the main control dial on the right-hand side of the top-plate to the exposure mode you want to use

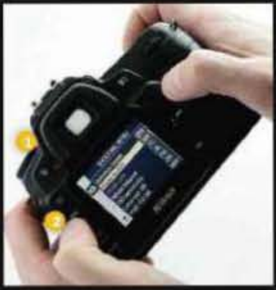
(2) Press MENU and use the four-way control and SET to select the first tab (📷1), then Quality, then choose either RAW or RAW + L to shoot a Raw and JPEG image at the same time



NIKON D80

(1) Switch the camera on and set the main control dial on the left-hand side of the top-plate to the exposure mode you want to use

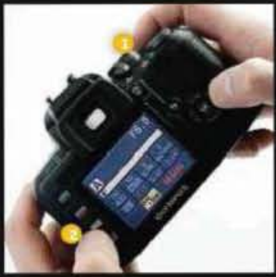
(2) Press MENU and use the four-way control and OK to select the Shooting Menu (📷), then Image quality, then choose NEF (RAW) or NEF (RAW) + JPEG to shoot a Raw and JPEG image at the same time



OLYMPUS E-400/E-410/E-420

(1) Switch the camera on and set the main control dial on the right-hand side of the top-plate to the exposure mode you want to use

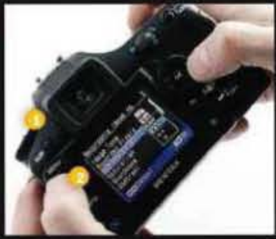
(2) Press MENU and use the OK button and four-way control to get to the quality box. Press OK and choose RAW or RAW+SHQ/HQ/SQ to shoot a Raw and JPEG image at the same time



PENTAX K100D/K200D

(1) Switch the camera on and set the main control dial on the left-hand side of the top-plate to the exposure mode you want to use

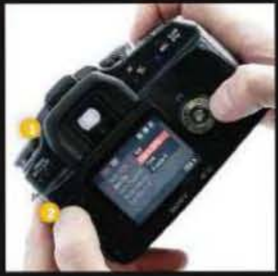
(2) Press MENU and use the four-way control and OK to select the Rec. Mode menu, then Quality level, then choose RAW



SONY ALPHA 100

(1) Switch the camera on and set the main control dial on the right-hand side of the top-plate to the exposure mode you want to use

(2) Press MENU and use the four-way control and AF to select the first tab (📷1), then Quality, then choose either RAW or RAW & JPEG to shoot a Raw and JPEG image at the same time



PRO TIPS

ONE TOUCH RAW!

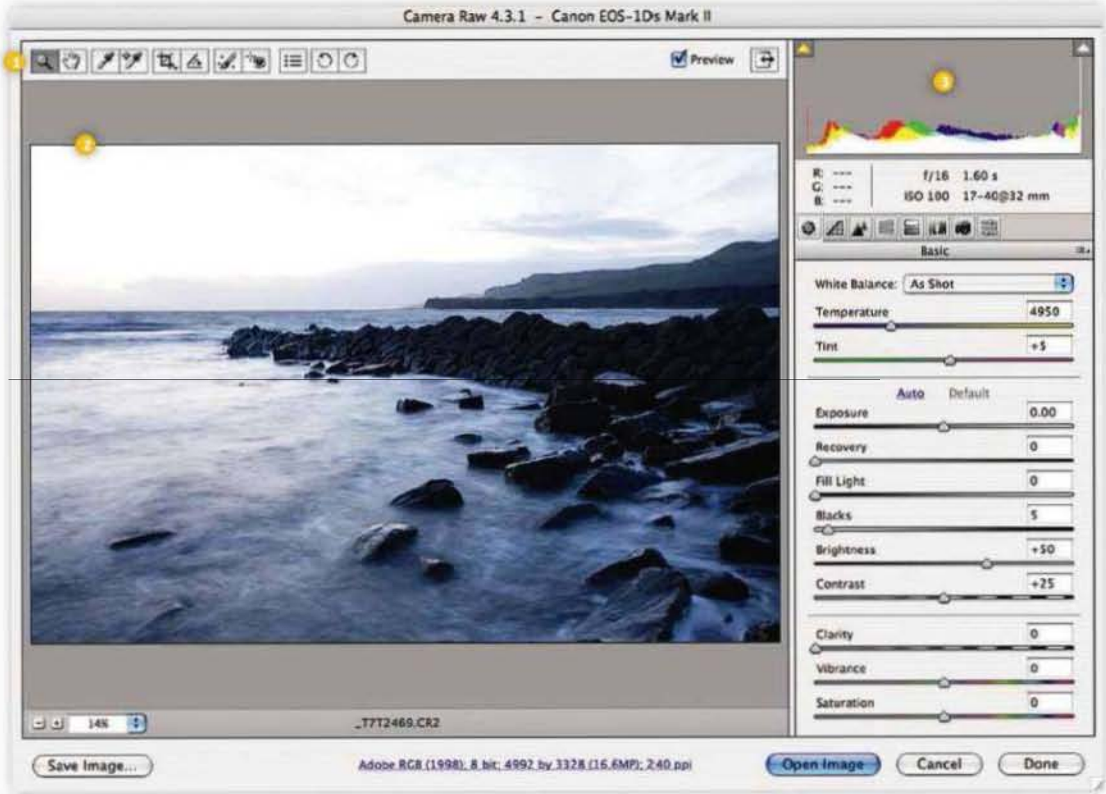
Some DSLRs, such as the Pentax K20D or Samsung GX-20, sport a Raw button that quickly allows you to switch from shooting JPEG to Raw without having to access the menu system

By shooting in Raw, you're able to take more control of the main parameters that make up an image, such as White Balance, colour saturation, exposure and sharpness, than you could if you shot in JPEG. This allows you more scope to optimise an image's characteristics to suit your requirements.

ROSS HODDINOTT

The process of converting Raw images

Taking photographs with your DSLR set to Raw rather than JPEG provides you with literally the raw materials for a great image. To transform them into top-quality photographs requires the use of Raw processing software



Camera Raw 4.3.1 – Canon EOS-1Ds Mark II

f/16 1.60 s
ISO 100 17-40@32 mm

White Balance: As Shot
Temperature 4950
Tint +5
Exposure 0.00
Recovery 0
Fill Light 0
Blacks 5
Brightness +50
Contrast +25
Clarity 0
Vibrance 0
Saturation 0

14%
_T7T2469.CR2
Adobe RGB (1998); 8 bit; 4992 by 3328 (16.6MP); 240 ppi

The interface of a Raw software package may initially appear daunting, but don't worry – you'll soon get the hang of it! Here we show the Raw processor used in Adobe Photoshop CS3.

1) TOOLS
Basic tools for magnifying the preview image or making adjustments such as cropping.

2) PREVIEW Allows you to preview any changes you're making before opening the file.

3) IMAGE INFO & ADJUSTMENT SLIDERS
This area provides a wealth of information about your Raw image and various sliding controls that allow you to make an incredible number of changes to the image. Don't worry about the large number of options – you'll only need to use a few of these to begin with.

Raw software

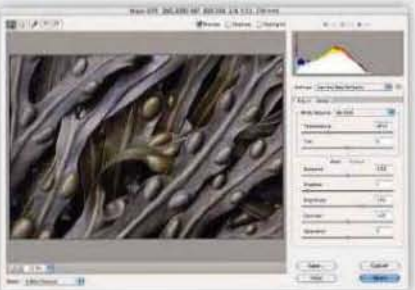
As we've mentioned before, it's not until you download your images to your computer that the benefits of shooting in raw can be seen. Many digital photographers who have migrated from film describe Raw files as digital 'negatives', with the computer replacing the darkroom as the place where the 'original' is processed and the final image developed. Rather than chemicals, it's software that is used to convert the Raw image into a JPEG or TIFF that can be saved and printed. While it's possible to do this without making any image adjustments, the fact is a few small tweaks can make a major difference to the final result.

ADOBE PHOTOSHOP LIGHTROOM
SIMPLIFY PHOTOGRAPHY
SHOOT TO FINISH
CaptureNX
CaptureNX

FREE RAW SOFTWARE WITH YOUR CAMERA

These are the packages bundled with the DSLRs. Most offer basic Raw to JPEG conversion, others offer more sophisticated features. Nikon and Olympus offer more elaborate packages as an optional extra (see right).

Brand	Software supplied
Canon	Digital Photo Professional
Fujifilm	**FinePix Studio**
Nikon	PictureProject 1.7
Olympus	**Master 2.0**
Panasonic	Silkypix's Developer Studio
Pentax	**Photo Browser & Photo Laboratory**
Samsung	Digimax Raw Converter
Sigma	**Photo Pro**
Sony	Image Data Converter



PREMIUM RAW SOFTWARE

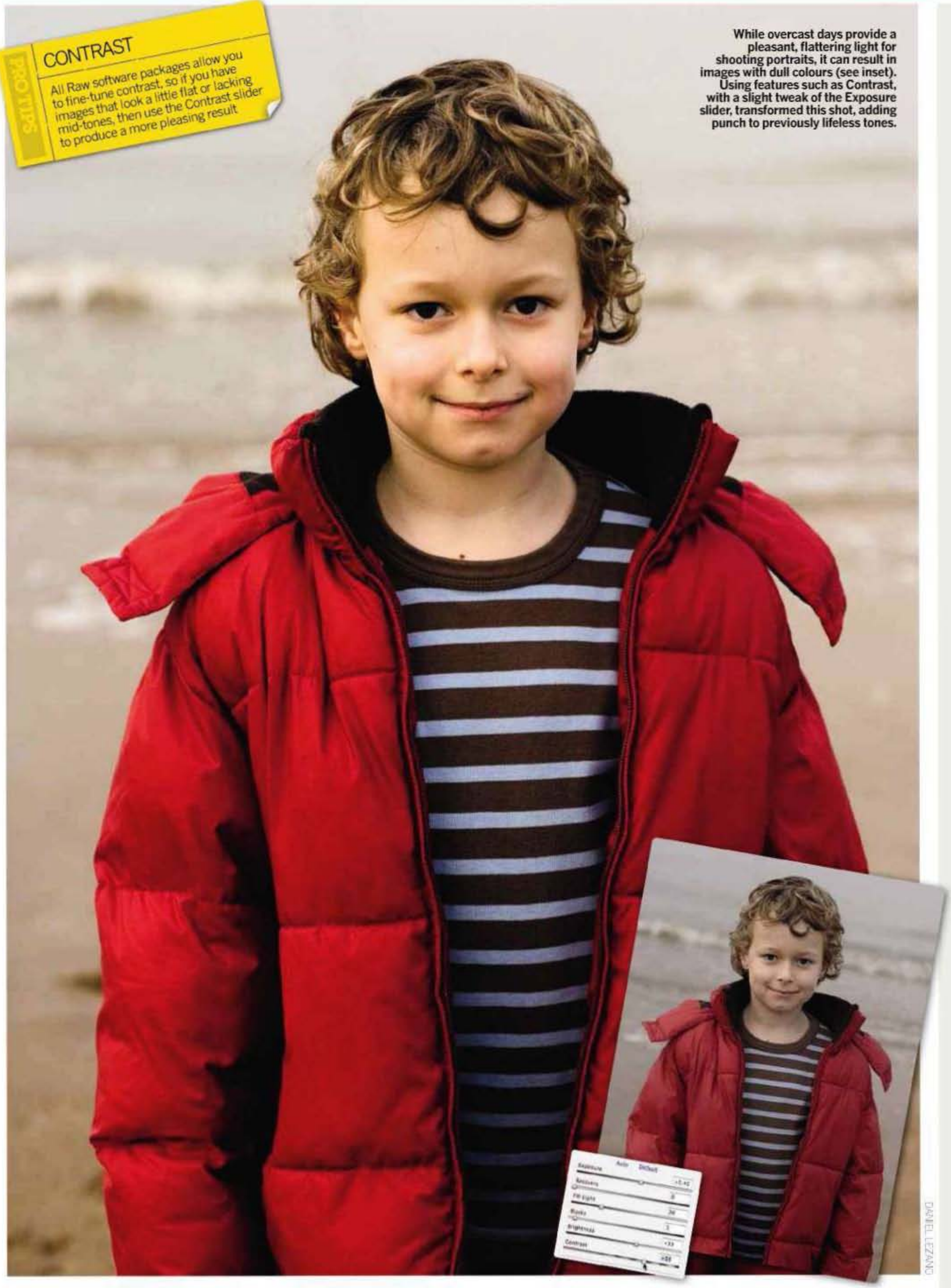
These packages are designed to handle all Raw files and offer more advanced features than the packages that come with the cameras. Below are some of the popular and more powerful packages. Some are available web-only.

Brand	Software	Price
Adobe	Photoshop CS3	£570
Adobe	**Photoshop Elements 7**	**£69**
Adobe	Lightroom 2	£200
Apple	**Aperture 2 (Mac only)**	**£130**
Bibble	Lite & Pro	$70/$130
Capture One	**4 & Pro**	**€99/€500**
Silkypix Developer	Studio 3.0	$150
Nikon	**Capture NX2**	**£99**
Olympus	Studio 2.0	€99

PRO TIPS

CONTRAST

All Raw software packages allow you to fine-tune contrast, so if you have images that look a little flat or lacking mid-tones, then use the Contrast slider to produce a more pleasing result


Exposure
Auto
Default
Recovery
Fill Light
Blacks
Brightness
Contrast

While overcast days provide a pleasant, flattering light for shooting portraits, it can result in images with dull colours (see inset). Using features such as Contrast, with a slight tweak of the Exposure slider, transformed this shot, adding punch to previously lifeless tones.

DANIEL LEZANO

Tweak your DSLR

How well do you know your camera's set-up menu and custom functions? Hidden away in these menus are settings that control virtually every aspect of your camera's behaviour. It's worth spending time customising it to work the way you want. Here are some of our favourites...

FILE NAME
AUTO
AUTO

FILE NUMBERING With this setting, choose whether you want to start numbering images from 0001 every time a new card is inserted, or number your shots continuously. We'd recommend the latter, otherwise you can end up with different pictures with identical file names, meaning you could accidentally copy over one image file with another. Some DSLRs also let you change the letters at the start of each file, to your initials (for example: DPL0127.jpg).

DIAL FUNCTION
DIAL DIRECTION
AEL/AFL
AEL/AFL MEMO
OFF

SET UP YOUR INPUT DIALS If your DSLR has two input dials, and it's always annoyed you that the thumbdial adjusts shutter speed while the front dial under your forefinger controls aperture, then it will be welcome news that some DSLRs allow you to swap this functionality around. Furthermore, you can often specify in which direction the dial turns to increase or decrease the value. On a similar theme, Olympus DSLRs even allow you to swap the direction in which the focus ring is turned!

File number
Series
Folder name
Standard form
Select folder
New folder
USB connection
Mass Storage
Audio signals
On
Select
Enter

AUDIBLE 'BEEP' The world is divided into those who like a beep to tell them their DSLR has achieved proper focus, and those who find this irritating. If you're in the second of these camps, look for the setting in your camera's menu system to silence the sound.

CUSTOM SETTING MENU
No memory card?
Image review
ISO auto
Grid display
Viewfinder warning
EV step
Exposure comp.
OK
ON
OFF
ON
ON
1/3
OFF

VIEWFINDER GRID If you are one of those people who can never hold their camera level, resulting in wonky horizons, then the ability to switch on grid lines will be a bonus. Other manufacturers let you view grid lines when composing in Live View, which proves particularly useful for architectural photography.

CUSTOM SETTING MENU
Center-weighted
Auto BKT set
Auto BKT order
Command dials
FUNC. button
Illumination
AE-L/AF-L
AE
OFF
ISO
OFF

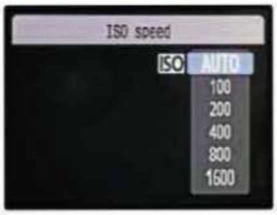
FUNCTION BUTTON Many DSLRs offer a 'Function' button that you can set to perform one of a number of pre-determined options. These tasks can include activating Live View, switching to Raw mode, activating a particular metering pattern or selecting a certain AF area mode.

Set up your DSLR the way you like it!

In less time than it takes to drink a cup of tea, you can learn something new about your digital SLR that will change the way you take pictures – guaranteed!

ISTOCKPHOTOS

Auto ISO mode



In the days of film, you picked your ISO rating and you stuck with it for the next 36 frames. In the digital world though, ISOs have become another variable, just like apertures and shutter speeds. You can change them in halves or thirds of a stop over a range of some seven stops, depending on your camera. That's more than the aperture range in some standard zooms.

To reflect this, most DSLRs have an Auto ISO setting where the ISO is raised automatically as light levels dim, usually in order to maintain a shutter speed for shake-free handheld shooting. Some Pentax and Samsung DSLRs even go so far as to include an ISO priority mode (SAv), where the shutter speed and aperture are both locked and it is only the ISO that is changed in response to changing light.

Auto ISO is a particularly useful function for the street photographer. When light levels are changing, but you are working quickly, you don't always have chance to notice whether your shutter speed has dipped into the camera-shake territory or not, and up the ISO to compensate. Why not let your camera do this for you?

Many DSLRs allow you to customise their Auto ISO option, specifying a minimum shutter speed after which the camera will start to change ISO instead. You'll also be able to specify the maximum ISO value here, which is crucial if this feature is going to work for you, for as the ISO climbs higher, picture quality tends to degrade, with noise becoming more apparent. It's worth experimenting with your camera to find your own ISO limit – a setting which you're happy to work at, but not beyond. If you are lucky enough to have a high-spec full-frame camera – like an EOS 5D MkII or Nikon D700 – then this could be some ISO 3200 or higher. Back in the real world though, it is more likely to be around ISO 640-800 on something like a Canon EOS 450D or Nikon D90.

Live View mode

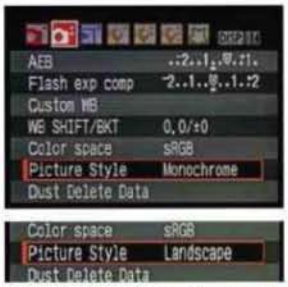
Live View is a feature that lets you compose a picture on the DSLR's LCD monitor – as you might with a compact camera – instead of through its viewfinder. When it was first introduced, many labelled it a gimmick, but since then more and more uses for this technology have emerged. The most obvious use for Live View is working at different viewpoints without pulling a muscle. Shooting from down below or over heads in large crowds is much easier this way. But there are other advantages too. Some argue that it's easier to see whether a composition will work or not by using the LCD monitor and not the viewfinder – and if you set your camera to black & white mode, it's possible to preview the scene in front of you in mono. Furthermore, on some DSLRs (Canon and Pentax particularly) Live View is carried out using the aperture set on the camera, which means you can use it to preview depth-of-field and the effect of ND grad filters.

ABOVE: Live View can be useful for composition.

ROSS HODDINOTT

Picture styles / filter effects

The great thing about digital photography is the control you have over factors such as colour saturation, contrast and sharpness when editing pictures on your computer – but did you know you can also do this in-camera? Most digital SLRs offer the facility to tweak image settings like this. Some have pre-determined picture settings, such as Landscape or Portrait, while others give more individual control over settings like brightness, contrast and saturation, letting you save these as presets. If your camera offers manual control over picture settings, here's one to get you started: try reducing the colour saturation as much as you can without making the image completely mono, and then pump up the contrast as high as it'll go. You'll get a hard, gritty look that is great for striking portraiture. Landscapers may like to try the opposite – boosting saturation and leaving contrast set to normal.



AEB ..2..1..0..1.
Flash exp comp 2..1..0..1..2
Custom WB
WB SHIFT/BKT 0,0/±0
Color space sRGB
Picture Style Monochrome
Dust Delete Data

Color space sRGB
Picture Style Landscape
Dust Delete Data

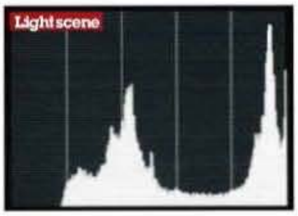
ABOVE: Select picture styles from the menu and choose from the options.

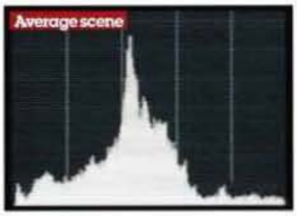
Using your histogram

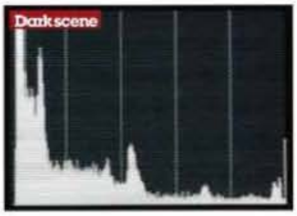
Take a picture on your DSLR and we bet the first thing you do afterwards is take a good long look at the back of your camera to review the picture on the LCD monitor. Nothing wrong with that, of course – it's one of the best things about digital photography – but can you really believe what you are looking at in this preview? Well, yes and no. You can zoom in and check that the sharpness is OK, and of course it'll show your composition and framing, but when it comes to exposure, the humble screen doesn't always show the truth. It can be influenced particularly by ambient light – bright sunlight will make pictures appear underexposed, while dim conditions will make things look too bright. The answer is to use your camera's histogram. This is a graphic representation of how the various tones are distributed throughout the picture: on the X-axis are tones, from pure black on left-hand side to pure white on the right. On the Y-axis is the number of pixels in the scene that have a specific tone.

Rather than interpret the histogram in terms of hard and fast numbers, it's better to look for trends and shapes. For an average, properly-exposed scene that contains a variety of tones, you'd expect to see an even distribution of tones throughout the histogram. If the scene is underexposed though, the histogram will be skewed to the left-hand side (the black end). Likewise, if overexposed, the peak will appear on the right of the scale. This is a much more reliable indication of exposure accuracy than looking at the image itself.

This is, of course, only true for 'average' subjects. Shoot a high-key or low-key scene (ie. one filled mostly with dark or light tones) and you should expect to see the histogram biased towards one end of the scale anyway. Again, once you know what to look for in a histogram, you can use it to gauge just how close you are to getting the perfect exposure. For further information on using histograms, see page 46.







AUTO IMAGE-REVIEW OFF

CUSTOM SETTING MENU

One feature that divides opinion almost as much as the audible beep is the auto-image review. This is where the image of the last frame taken appears on the LCD screen shortly after firing the shutter. Not only does this use extra battery power, it can be quite distracting when looking through the viewfinder. Some photographers switch off the instant playback for another reason too – it's too tempting to check it straight away, and while you are looking at the screen, you could be missing out on other good photo opportunities. Some DSLRs also have an auto-power off function, designed to save battery power. This can usually be disabled or extended in the camera's menu system as well.

SHUTTER RELEASE W/OUT CARD

This is a setting to find, switch off and leave alone. We recommend you never have your camera set so it can fire with no memory card in it. It'll only be a matter of time before you make the ultimate mistake and take a dozen (great) shots, and fail to record any of them!

AF/AE LOCK

CUSTOM SETTING MENU

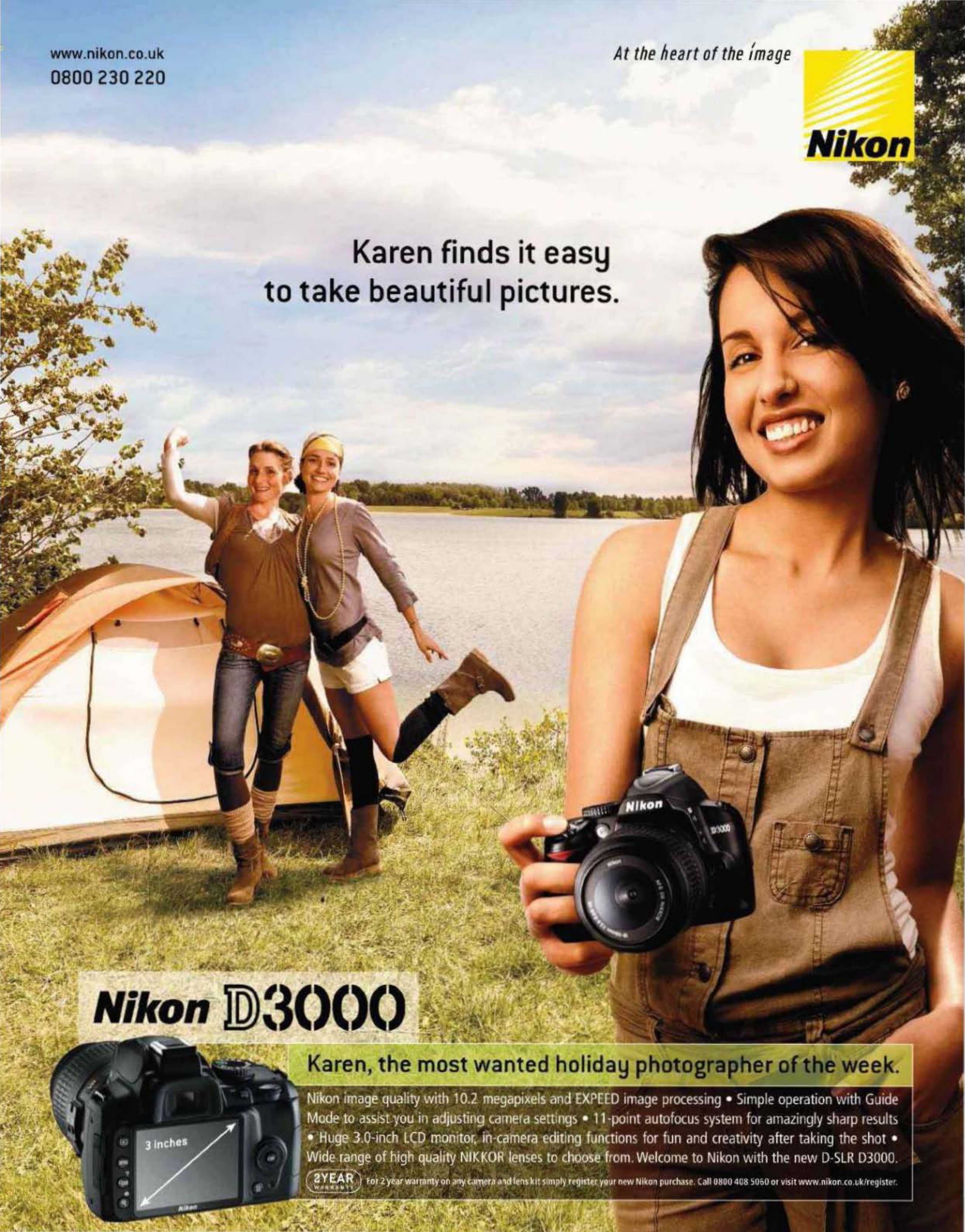
One of the most useful custom functions is that which dictates how the AF and AE locks work. Everyone has their own preferred way of working, so it's good that you can customise this control so well. For instance, when you half-press the shutter release, do you like both the exposure and focus to lock? Or just the focus? Or just the exposure? Maybe you like the exposure to lock when you hold down the AE-L button. Or maybe you want it to lock when you simply press the AE-L button once, and not unlock until it's pressed again. Whichever way you prefer to work, it's most likely your DSLR can be set up to work that way.

SCREEN BRIGHTNESS

Struggling to see your screen in the bright sunlight? You can turn its brightness up in your camera's menu. Or turn it down if you want to save battery, or are working in dim conditions at night.

CREATING 'MY MENU'

Having read this far, and discovered a few new things about your camera just by playing with it, you'll hopefully have learned a lot about how your DSLR works. You may also be irritated because you can't remember which menu is home to a specific function. Usefully, some DSLRs have a custom menu (often called My Menu) that you can set-up for fast access to your favourite commands. Give it a try!



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SIMPLE
STEPS TO
BETTER
PICTURES

BASIC TECHNIQUES

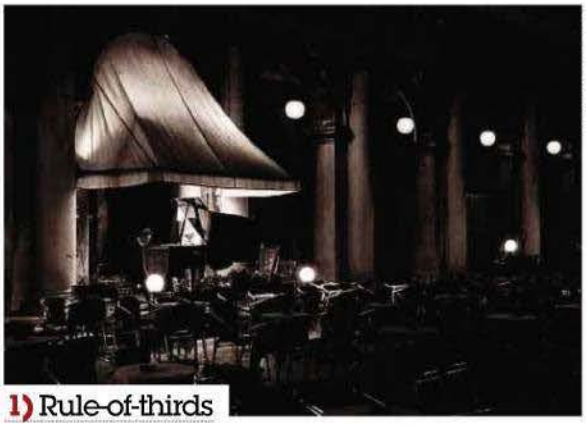
The essential knowledge you need to take impressive photos with your digital SLR

The fundamentals of composition

EVERY TIME WE raise a camera to our eye to take a photo we're 'composing', but the mistake many photographers make is failing to spend enough time deciding if what they've got in the viewfinder is actually interesting before hitting the shutter release.

Painters have a distinct advantage over photographers because they start off with an empty canvas, then set about filling it, so they can move things around a little, add things that don't exist, or omit elements that spoil the composition and detract from the overall impact. Our canvas is already full, so we have to decide what part of a scene or subject we want to capture. There are various aids and tricks available to help us do this correctly. The rule-of-thirds is a classic and effective compositional tool. Natural or man-made lines can be used to lead the eye around an image, while foreground interest adds depth and scale. Colour has great power, helping to highlight specific elements so they dominate the composition or influence the overall mood of the image.

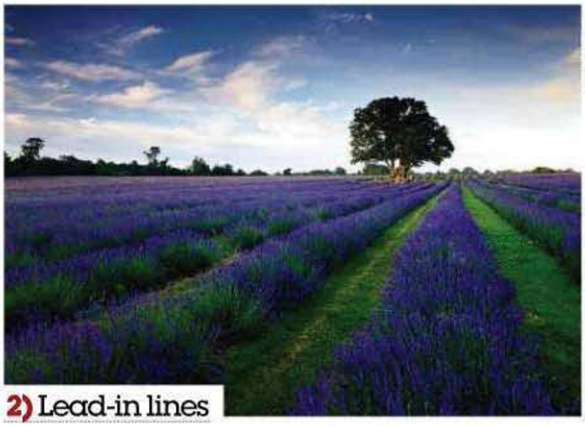
Lens choice allows us to control exactly what appears in the frame and also how perspective is recorded, while viewpoint changes the relationship between the elements in a scene. Ultimately though, the most powerful tools at your disposal are your eyes, and it's only by using them and thinking about what you're doing that your compositional skills will improve. Once you've established an eye for composition, you'll find that your images take on more balance and offer stronger visual impact.



BJORN THOMASSEN

1) Rule-of-thirds

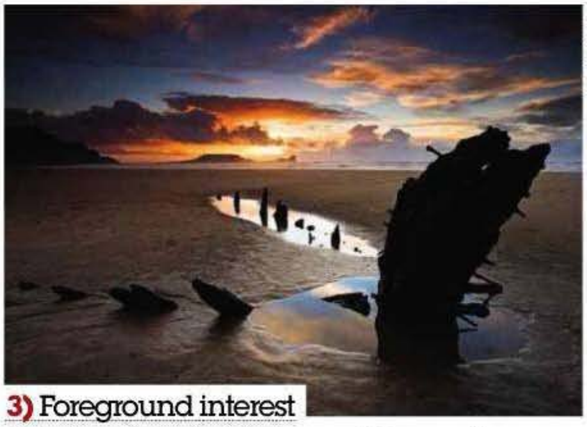
The rule-of-thirds is the most common photographic 'rule' and was first devised by artists to use when painting landscapes. It's based on the idea of dividing the image area into thirds and placing the desired focal points on the intersection of those thirds for a more balanced composition. A photographer can to this by simply dividing the viewfinder into an imaginary grid using two horizontal and two vertical lines. Use the horizontal lines to aid positioning of the horizon, the bottom line to emphasise the foreground and the top line to emphasise the sky. Use vertical lines to position features such as buildings, trees or a person. Finally, the four intersection points make idea places to position your main focal points.



HELEN DIXON

2) Lead-in lines

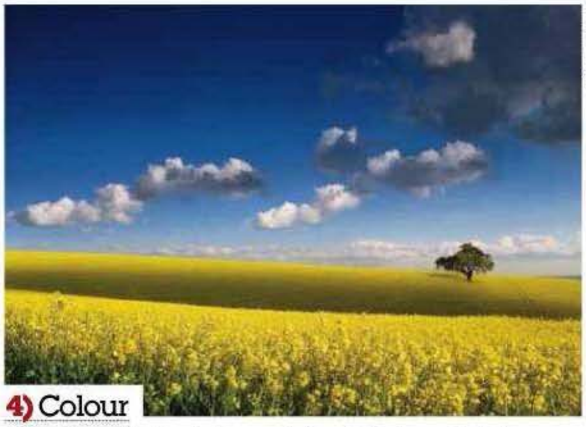
Lead-in lines can make a good scenic shot great, because they provide a natural entry point into the composition and carry the viewer's eye into the scene. These could include rivers, streams, walls and hedges in landscapes, or arms and legs in portraits – any line that travels into and through the frame will work well. If the lines travel diagonally, ideally they should run from the bottom left of the composition to top right – where, you will have hopefully placed your focal point according to the rule of thirds. Converging lines are even more powerful as they not only lead the eye into and through the scene, but they also add a strong sense of distance and depth so the composition looks three-dimensional.



ADAM BURTON

3) Foreground interest

By placing subject matter in the foreground of a composition, you can create depth and scale. This is easiest and most effective if you use a wide-angle lens, as you can include features literally at your feet. These lenses also appear to exaggerate perspective so that subjects closer to the camera are much larger than the distant features. This illusion conveys depth because your brain knows the distant features are normally bigger, and so assumes they're further away. The landscape is full of potential foreground interest such as rocks, driftwood and flowers. Be sure to use a small aperture (f/16 or f/22) to maximise depth-of-field, because unless everything in the composition is sharp from front-to-back, your efforts will be in vain.



HELEN DIXON

4) Colour

Colour doesn't just make images look realistic, it can also influence the mood of a photograph. Warm colours such as yellow and orange are soothing and restful, while green is refreshing and blue can be cold and hostile. If you include contrasting colours, such as blue and yellow or red and green, the composition will be more eye-catching, whereas colours that complement each other such as red and yellow, are more gentle and atmospheric. Warm colours are said to advance, so they work well in the foreground on a shot, while cool colours (green and blue) recede and so they make better backgrounds. Finally, red is the most potent of all colours and will dominate a composition even if red areas are only small in the frame.

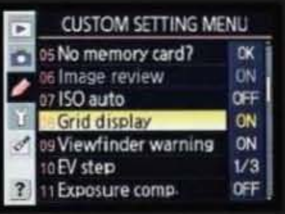
BJORN THOMASSEN

5) Lenses

The first decision you need to make when composing a photograph is deciding how much, or how little, of the scene or subject you actually want to include – this is mainly controlled by which lens you use. Wide-angle lenses obviously have a generous angle-of-view and can capture more than our eyes can see, whereas telephotos magnify the scene so you can be more selective about what you include in the composition. Zooms covering wide-angle and telephoto settings are ideal because you can control what you include or exclude with great precision. But lenses do more than this – they also allow you to make use of perspective and scale. Wide-angles seem to stretch perspective so the features in a scene appear spaced apart, which is great for emphasising lines and foreground interest. Telephotos, on the other hand, appear to compress perspective so the features in a scene appear more crowded together than they really are, allowing you to create dramatic images. Finally, wide-angle lenses give extensive depth-of-field, especially at small apertures, so you can achieve front-to-back sharpness. Whereas telephotos limit depth-of-field so you can throw the background and/or foreground out of focus and make specific parts of the image stand out, such as a person set against a potentially distracting background.

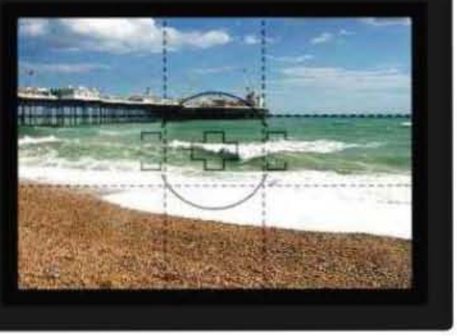
Using Live View & Viewfinder grid lines

If your DSLR has Live View, you can use it to check the composition of a shot far more effectively than if you look through the viewfinder. By using the rear LCD monitor you detach yourself from the scene and can make a more objective assessment. Some viewfinders allow grid lines to be superimposed on the screen, allowing you to divide up the frame and position important features using the rule-of-thirds.



CUSTOM SETTING MENU

05 No memory card? OK
06 Image review ON
07 ISO auto OFF
Grid display ON
09 Viewfinder warning ON
10 EV step 1/3
11 Exposure comp. OFF



Some DSLRs allow gridlines to be superimposed on the viewfinder or LCD monitor via a custom function, while Live View is another aid you can use for accurate composition.

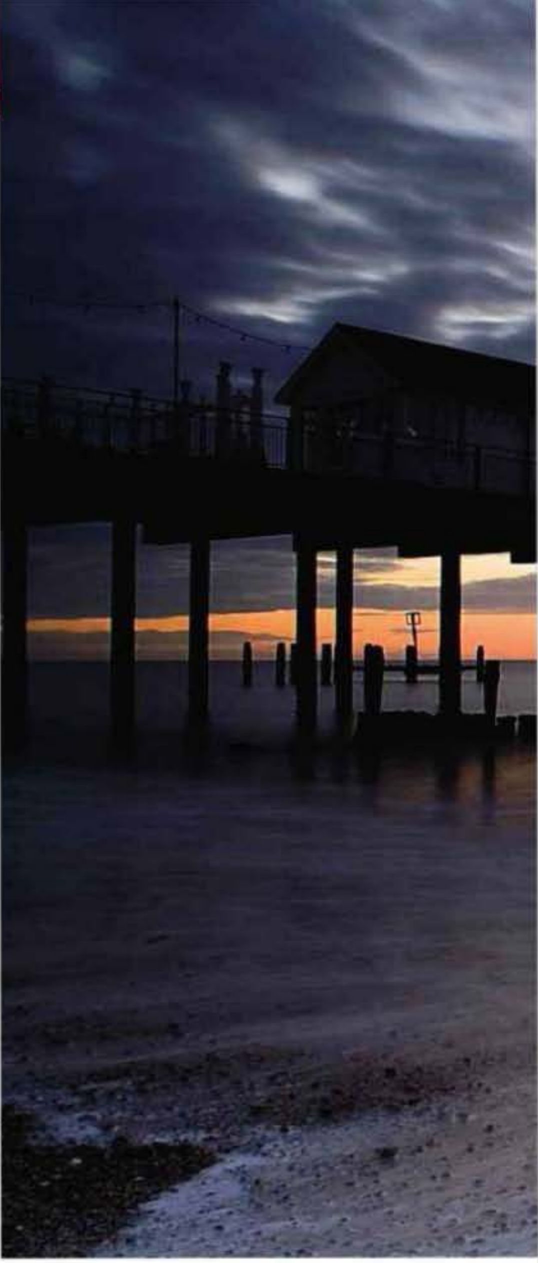
The basics of exposure

Our jargon-free guide to the fundamentals of exposure provides everything you need to know to get to grips with apertures and shutter speeds

EVERY EXPOSURE YOU take is made up of a combination of an aperture and shutter speed that determines how much light will reach the sensor. The aperture is the iris in the lens, much like the pupil of the eye, that can widen to allow more light through or contract to restrict the amount of light that enters the lens. Use a wide aperture and more light is able to pass through during a set time span than if you had selected a small aperture setting.

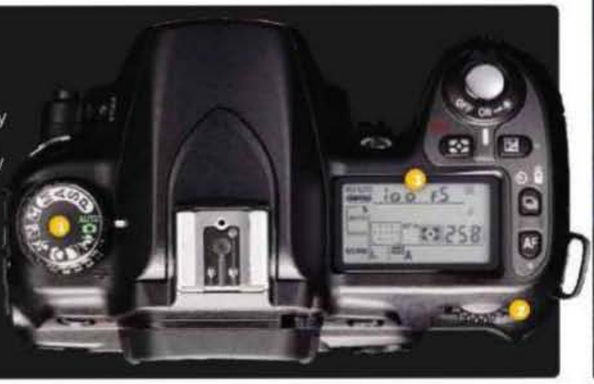
The shutter is a barrier in front of the sensor that moves out of the light's path when you press the shutter release, allowing light to reach the sensor and create an exposed image. The exposure's duration is determined by the shutter speed. There is an obvious relationship between the aperture and the shutter speed in determining the correct exposure and this is selected by the exposure mode. While the Full-Auto AE (Auto Exposure) mode provides point-and-shoot simplicity by automatically selecting a combination of aperture and shutter speed, and allows beginners to take great pictures with the minimum of fuss, the beauty and enjoyment of digital SLR photography is to take control and directly determine how the picture will look.

The first major step to doing this is to take your camera off Full Auto and select one of the exposure modes that allow for far more creative photography. Follow our guide and experiment with apertures and shutter speeds – after all, it's not like you'll be wasting any film! Before you know it, you'll soon be creating imaginative images rather than just shooting snaps.



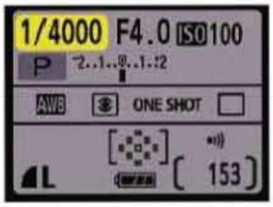
Exposure controls

Many beginners believe it's difficult to use aperture- or shutter-priority but in fact it's very easy to do. Once you've selected the exposure mode (1), it's simply a case of rotating the input dial (2) until the aperture or shutter speed you'd like to use appears on the top-plate (or rear) LCD panel (3). Depress the shutter button halfway and the camera works out the rest. It's as easy as that!



UNDERSTANDING SHUTTER SPEEDS

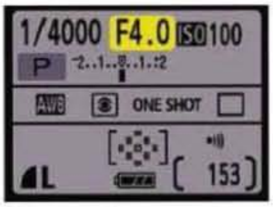
Exposure settings are made by changing either the aperture or the shutter speed. The increments at which you change these settings are normally referred to as 'stops'. When you change a setting by a 'stop', you are either doubling or halving the exposure. So for instance, changing from 1/500sec to 1/250sec doubles the duration of the exposure. As well as full stops, you can also vary exposure in 1/2 or 1/3 stops depending on the camera model you use. The diagram below shows shutter speeds from one second to 1/4000sec.

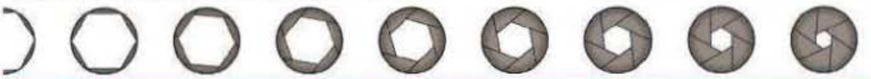


Full stops	1sec	1/2sec	1/4sec	1/8sec	1/16sec	1/30sec	1/60sec	1/125sec	1/250sec	1/500sec	1/1000sec	1/2000sec	1/4000sec
Half stops	0.7sec	1/3sec	1/6sec	1/10sec	1/20sec	1/45sec	1/90sec	1/180sec	1/350sec	1/750sec	1/1500sec	1/3000sec	

UNDERSTANDING APERTURE SETTINGS

The illustration below shows the iris at one-stop increments, ie each step from left to right halves the amount of light passing through the lens. The maximum aperture setting refers to the iris wide open (in this instance f/2.8) and the minimum aperture is the iris at its smallest setting (f/22 in this case). An explanation of where the f/number derives from would require an extensive scientific explanation. The key to you understanding apertures is to learn how f/numbers correlates with the size of the aperture.





Full stops	f/2.8	f/4	f/5.6	f/8	f/11	f/16	f/22	f/32
Half stops	f/3.5	f/4.5	f/6.7	f/9.5	f/13	f/19	f/27	

The ISO rating

It's worth mentioning the ISO rating. Basically, this indicates the sensor's sensitivity to light. A low setting such as ISO 100 indicates less sensitivity while a higher ISO setting, for instance 800, similarly represents an increase sensitivity. We'll explain which ISO rating is best for certain situations later but it's worth noting now that the ISO you set will determine the combination of apertures and shutter speeds available at particular light levels. If you're starting out, setting a low ISO rating (ISO 100-200) is best in bright conditions and a mid-setting (e.g. ISO 400) for general use.

Take control of the exposure mode and determine how the final image will be captured. A small aperture and slow shutter speed means the entire scene is sharp and the water's motion is beautifully blurred.

Q&A: Exposure

What's a maximum and minimum aperture?
These are the widest and smallest apertures that can be set on a lens.

Why are some zooms stated as having two maximum aperture values?
Two figures are provided for the majority of zooms to indicate that the maximum aperture changes as you zoom the lens. For instance, an 18-55mm f/3.5-4.5 zoom indicates that the lens has a maximum aperture of f/3.5 when set to 18mm and when it has zoomed in to 55mm it becomes f/4.5.

What are reciprocal exposure settings?
There are a variety of combinations of shutter speeds and apertures that give the same exposure. For instance, 1/250sec at f/4 would give the same exposure as 1/500sec at f/2.8 or 1/125 at f/5.6. These combinations are said to be reciprocal.

70-300mm
1:4.5-5.6 DO IS

What are fast lenses?
A fast lens is one with a wider maximum aperture than the standard. For instance, a 70-200mm f/2.8 lens is described as fast because most lenses of this type have a maximum aperture of f/4.

What is exposure compensation for?
This facility allows you to alter the set exposure, which we will cover in detail later on.

Useful accessories

Make the most of exposure modes with the following accessories...

TRIPOD A basic tripod that provides a sturdy support will allow you to use longer shutter speeds without fear of camera shake. Look to spend £40.

NEUTRAL DENSITY (ND) FILTER
An ND filter reduces the amount of light reaching the lens. Use it when you want to set long exposures but the light level is too high. Check out filters from brands such as Hoya and Cokin.

REMOTE RELEASE To avoid shake with long exposures, use a remote release to fire the shutter rather than the camera's shutter button. Your camera's instruction manual will tell you which you need. You can also help avoid shake by using the self-timer.

Understanding your DSLR's metering system

Before looking at how you can influence the exposure, it's best to understand how your camera's metering works. Here we've covered the essentials you need to know in order to pick the best metering mode for different shooting conditions

DIGITAL SLRS BOAST very sophisticated exposure systems and offer a choice of metering patterns – each working out the exposure in a different way to suit varying lighting conditions. A camera's exposure system works on the assumption that the area of the scene that is being metered is a mid-tone, or 18% grey to be exact; the average if all dark, lights and mid-tones were mixed together. It's the basis of all metering systems and works surprisingly well. It's important to be aware of this when you're taking pictures (even if you don't fully understand it) as it helps you know when you may have problems with exposure.

While this system is fine in the majority of shooting situations, it can lead to incorrect exposures when the scene or subject is considerably lighter or darker in tone than 18% grey. For example, very dark subjects, like a black building, can fool the metering system into thinking that the general scene is much darker than it really is and, as a result, will overexposed the image. Similarly, very light subjects, such as a snow scene, can fool the camera into underexposing them – making them appear darker than they are – as the light meter will take a reading designed to render them as a mid-tone. It's in these trickier lighting situations, where the popular multi-zone pattern that provides the correct exposure for around 90 percent of shots struggles as it tries to meter the entire scene. It's in cases like this where using the other patterns such as partial and spot are useful as they offer more control.

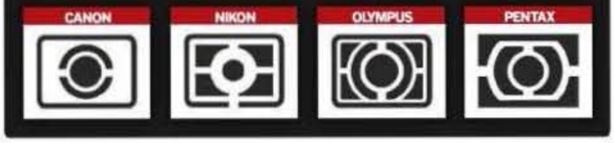
As a camera is trying to render an image grey, it's your job to ensure you compensate to keep the tones true to life. To do this you have to either overexpose the camera's reading to give a lighter result than the camera wants, or underexpose to give a darker result than the camera wants. So with the black building, the camera's exposure reading will lead to overexposure, which will lighten the building to grey, so you need to reduce the exposure to keep it black. With the snow scene it's giving less exposure than is necessary, which will make the snow appear grey, so you need to add exposure to make the snow look white. If you're still a little unsure, don't worry, when you start shooting light and dark objects and then try to override the camera's readings, you'll soon get to grips with it. By following our expert advice you should also increase the chances of keeping any exposure errors to a minimum.

Multi-zone metering

In theory, you could take every picture using multi-zone metering and never have a bad exposure. Well almost... The multi-zone pattern is the newest and most sophisticated type of metering pattern and the one most photographers stick to for the majority of their shots. While every manufacturer has their own types of multi-zone meter, each with varying numbers and shapes of zones, all work in much the same way. Basically, the entire image area is divided into a number of zones and when activated, individual meter readings are taken from each one of them. The camera's micro-processor then evaluates all these individual readings and uses complex algorithms to calculate the final exposure. To improve accuracy, many cameras also boast a library of tens of thousands of images taken in various lighting conditions, which are compared in a micro-second with the new scene to produce the exposure value. This system has proven highly reliable and gets the exposure correct in over 90 percent of shooting situations. It's not perfect however, with unusually light (eg a snow scene or white wall) or very dark (eg a black door) subjects being incorrectly exposed. Multi-zone meters can also have trouble with very high-contrast scenes, such as a backlit subject. This is why there are other metering patterns available, as well as a choice of exposure overrides.

Recognising the multi-zone pattern icon

Every camera brand has their own set of icons for metering patterns and below we show you what to look for on four popular brands

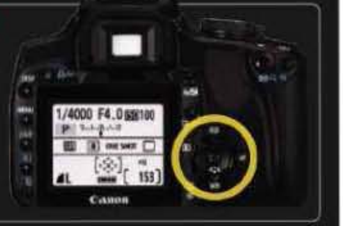


How to choose metering patterns

Selecting a metering pattern is straightforward, but we've provided a guide on how to do it for a number of leading DSLRs

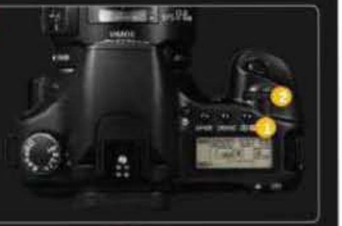
CANON EOS 400D/450D

The metering pattern icon appears at the centre of the display. To change metering patterns, press the button on the four-way controller to show the metering modes, use the left/right controller button to select and press SET



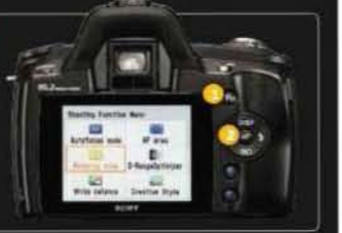
CANON EOS 30D/40D/50D

Some EOS models, such as the EOS 20D and 30D, have push button controls. With these models, (1) press the metering mode button and (2) rotate the input dial until the top-plate LCD illustrates the relevant metering pattern icon



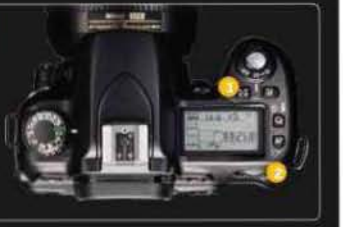
SONY ALPHA 230

Press the Fn button (1) and select the Metering mode icon by pressing the AF button (2). Choose the pattern you'd like to use and press AF again to set.



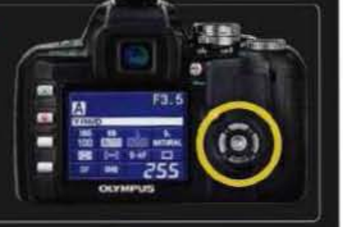
NIKON D80

With the D80, and other Nikon models aimed at enthusiasts, to choose the metering pattern: (1) press the metering mode button on the top-plate; (2) rotate the rear input dial until the relevant icon appears on the top-plate LCD



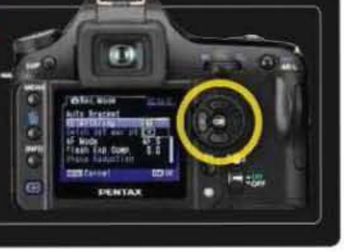
OLYMPUS E-400

You can go through the MENU system but a quicker way is to press OK, highlight the metering icon using the four-way controller, press OK, select the pattern with the dial or four-way controller and press OK to confirm



PENTAX K100D

Most Pentax DSLRs select the metering mode in the same way as the K100D. Press MENU to get to the Rec Mode display and use the four-way controller dial to go down to AE Metering, select the required pattern and press OK



Exposure: The main problems

As mentioned earlier, multi-zone metering is reliable, but there are situations that can cause it problems. Here we highlight the most common scenarios to be aware of and how you can prevent and solve any exposure error

BJØRN THOMASSEN

BACKLIT SUBJECT The strong backlighting will lead to your camera's meter underexposing the subject by between 1½ and two stops. Solution: If the subject is a mid-tone, set to spot meter and use AE-Lock on the subject. If not, simply set +1½ to +2EV exposure compensation.

ROSS HODDINOTT

LIGHTER THAN AVERAGE SCENE The camera's meter is unaware that the subject has light tones and will underexpose the scene. Solution: To ensure that the light tones appear accurate, deliberately add to the exposure by setting between +1 to +2EV exposure compensation.

NADIA ISAKOVA

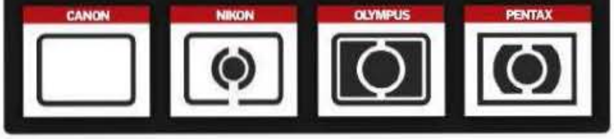
DARKER THAN AVERAGE SCENE The camera is unaware that the subject is darker than average and so will overexpose the scene. Solution: The camera will give the scene more exposure than is required, so to counteract this, set between -1 to -2EV exposure compensation.

Centre-weighted average

Despite the arrival of newer and more sophisticated patterns, this veteran still has its place on digital SLRs. This is the oldest metering pattern and was the number one choice until the multi-zone pattern was introduced. As its name suggests, it takes an average reading from the entire frame, with slight emphasis given to the central area. While relatively unsophisticated, its past popularity means it is still included in all cameras, as many experienced photographers feel comfortable using this pattern. i'ts also a good choice when using AE-Lock.

Recognising the centre-weighted icon

You will find the centre-weighted pattern available on your SLR but you're unlikely to ever choose it in favour of multi-zone metering.



Spot and partial metering

This is a great pattern when you want to take a reading from a specific area of the frame – but it must be used with care.

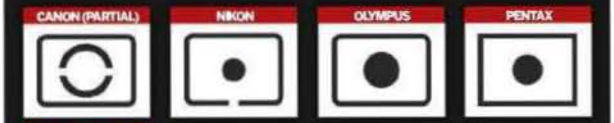
While multi-zone metering takes measurements from the entire image area, spot and partial metering concentrates on the central area of the frame (you can see the measuring circle at the centre of the viewfinder screen). This allows you to precisely control where the exposure reading for the shot is taken from, as only the area of the frame within the measuring circle is used to determine the exposure. Spot and partial metering is a great way to ensure you get the proper exposure when you're shooting in difficult lighting conditions.

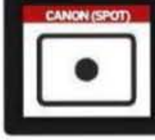
Spot and partial are very similar in how they work. The main difference is spot offers a very precise measuring circle (usually around 3% of the image area), while partial meters usually measure the central 9% of the frame. The more precise spot meter is found on most DSLRs, while partial is less common, and a handful of cameras boast both.

You must take great care when using spot or partial metering. Always take a reading from a mid-tone and not a light or dark subject, otherwise you will produce an incorrect exposure.

Recognising the spot/partial icon

You need to select spot or partial by pressing the metering selector button and picking the respective icon on the LCD monitor. The spot icon is normally shown as a single dot at the centre of the rectangle, while partial is normally shown as two small curved lines that form the outline of a near-circle close to the centre of the frame.





REMEMBER: It's vital that you position the spot/partial meter over a mid-tone to get the correct exposure. Spot meter off a dark subject and you'll overexpose it and vice-versa.

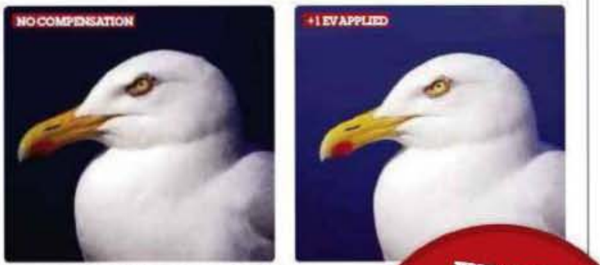
Exposure compensation

This is the most commonly used override and allows you to make adjustments to increase or decrease the exposure

ONCE YOU ARE aware of how metering systems work, and have gained a little experience using your DSLR, the times when the exposure system is likely to make mistakes become easier to predict and compensate for. The simplest way to override your camera's metered exposure is to use exposure compensation, which allows you to dial in a set exposure increment to increase (+) or decrease (–) the exposure. For instance, a subject that is significantly lighter than a mid-tone, like a bride's white wedding dress, is likely to be underexposed by your camera, so you need to select positive (+) compensation. If the subject is much darker than a mid-tone, like a black dog, it is likely to be rendered overexposed. Therefore, apply negative (–) compensation. Applying exposure compensation is quite straightforward and with experience you'll be able to judge how much is needed. All digital SLRs have a dedicated exposure compensation button to make it a quick and easy process in either automatic or semi-automatic exposure modes. The compensation you set is often shown as + or – E.V (Exposure Value). If you add a half-stop of exposure it will display as +1/2EV, while a 1/3 stop reduction is shown as -1/3EV.

How does exposure compensation work?

Exposure compensation functions differently depending on the mode you use. In aperture-priority the compensation is applied by changing the shutter speed, but when using shutter-priority, it's the aperture that's adjusted. In program mode, the camera automatically decides between the aperture and/or shutter speed depending on the light levels so to minimise camera shake.



EXPOSURE COMPENSATION This is a typical example of when a subject deceives a metering system. When photographing the white gull, the camera attempted to record its bright, white plumage as a mid-tone and the result was underexposed. I selected a positive compensation value of +1EV and the subsequent image is correctly exposed.

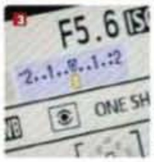
ROSS HODDINOTT

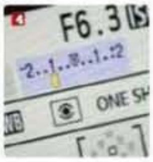
EXPOSURE COMPENSATION SUMMARY

Set a + value to add to the exposure, for example when shooting a light scene.
Set a - value to reduce the exposure, for example when shooting a darker than average scene

Using exposure compensation

Your DSLR's exposure compensation facility is useful in any situation when you wish to make a picture brighter/lighter or darker than the exposure set by the camera. While exposure compensation is designed for corrective purposes, the effect can be used creatively. It's extremely easy to use: try applying '+' and '–' settings on subjects with different tones and see the effect it has. Here's how to do it:





1) Press and hold in your camera's exposure compensation button (normally indicated by a +/- icon). 2) Rotate the input dial to select the level of compensation you want. A negative value means you're decreasing the exposure, a positive value means you're increasing it. 3)The exposure compensation scale is displayed in the camera's viewfinder or control panel, or both. 4) The level of compensation you set will apply to all subsequent images unless you reset it to 0+/- EV.

Set exposure overrides on your DSLR

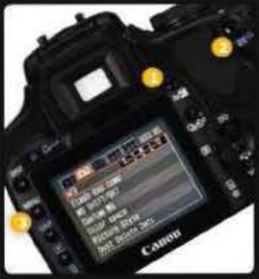
Setting exposure compensation, AE-Lock or AEB is very easy to do. Here we show how to set them on five popular DSLR brands

CANON EOS 400D/450D

(1) *Exposure compensation* Press and hold the Av +/- button near the top-right corner of the LCD monitor. Set your desired compensation using the exposure scale on the LCD

(2) *AE-Lock* Press the * button on the top right of the camera to lock the exposure for six seconds

(3) *AEB* Press MENU, go to CAM2, choose AEB and use the input dial to choose the increments

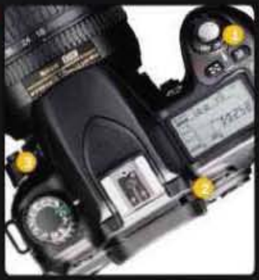


NIKON DSLRS

(1) *Exposure compensation* Press and hold the +/- button found behind the shutter button, then rotate the rear input dial to set your desired compensation

(2) *AE-Lock* Press and hold the AE-L button on the back, to the right of the viewfinder

(3) *AEB* Press the BKT button and set the increment using the top-plate LCD panel

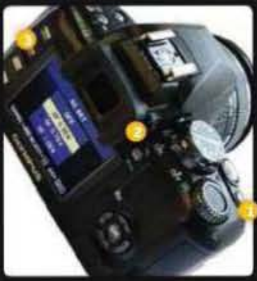


OLYMPUS E-SERIES DSLRS

(1) *Exposure compensation* Press and hold the +/- button found beside the shutter button, then rotate the input dial to set your compensation, using the scale on the rear LCD monitor

(2) *AE-Lock* Press and hold the AE-L button on the back, to the right of the viewfinder

(3) *AEB* Press MENU, go down to the second tab, then choose AE BKT to set the increments

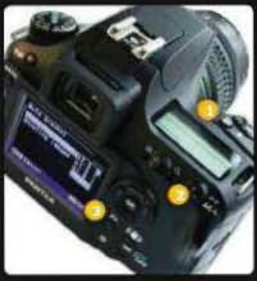


PENTAX K100D/K200D

(1) *Exposure compensation* Press and hold the +/- button found behind the shutter button, then rotate the rear input dial to set your desired compensation, using the top-plate LCD panel

(2) *AE-Lock* Press the AE-L button on the camera's back to lock the exposure for six seconds

(3) *AEB* Press the Fn button, press up on the four-way control and go across to Auto Bracket

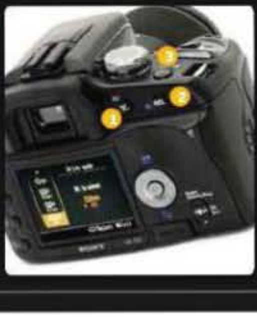


SONY ALPHA SERIES

(1) *Exposure compensation* Press the +/- button located right of the viewfinder, then rotate the input dial to set your desired compensation

(2) *AE-Lock* Press and hold the AE-L button to fix the exposure

(3) *AEB* Press the Drive button (on the top-plate or rear, depending on model) and use the four-way control to set the increments on the rear LCD



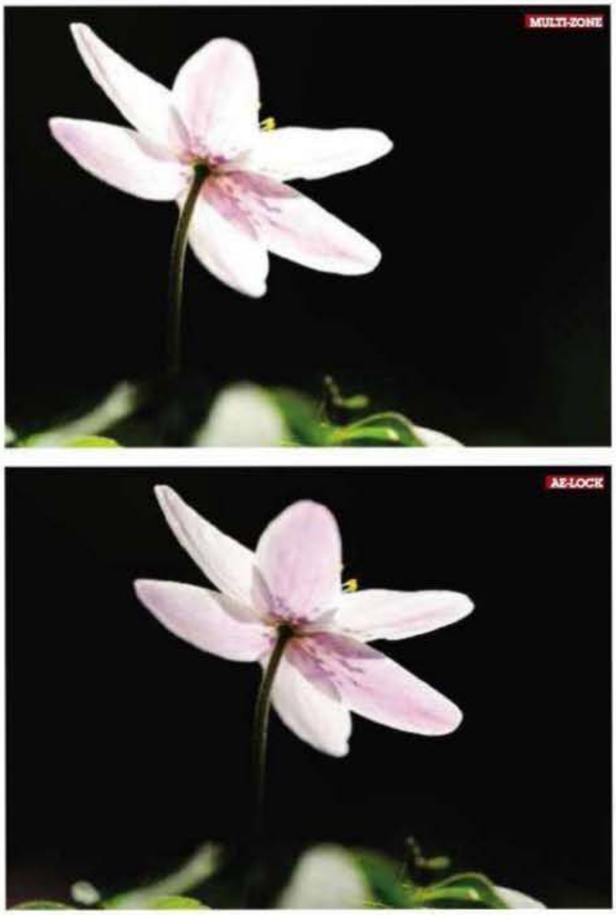
Auto Exposure Lock (AE-L)

This useful function allows you to 'lock' an exposure reading from a subject outside your focus area, when the main focal point is not a mid-tone and can fool the camera's multi-zone metering system into giving an inaccurate exposure

AE-L PRACTICALLY EVERY DSLR has an AE-L button, which is normally found on the top right of the camera's rear, or near the LCD monitor. AE-L is an abbreviation for Auto Exposure Lock. It is designed to lock the current exposure setting so that it doesn't change when you recompose your image – even if the incoming light levels change. AE-L can be used in any exposure mode, although it is pointless if you are shooting in manual mode.

When you press the shutter button down halfway, you engage the AF to focus and the metering system to take a reading. That's ideal most of the time, but what about when you want to focus and meter from different subjects or parts of the scene? That's where AE-Lock comes in. This useful feature allows you to take an exposure reading independently of where you focus, which is ideal if your subject is very dark or light or positioned in a bright or dim area of the scene.

AE-L is most commonly used with the spot or centre-weighted metering pattern in order to 'lock' the reading taken from a specific area of the frame. This is particularly useful in tricky lighting conditions that can fool your metering system – like backlit objects or subjects with very dark or light backgrounds. For instance, if you are shooting a scene containing a bright light source in part of the frame, your camera's multi-zone meter could be fooled by this light area into thinking that the scene is brighter than it actually is and will underexpose the result. To achieve the correct exposure, you want to take a meter reading that excludes the light region. This is possible by taking a spot/partial meter reading from the subject itself or an area of the scene that is a mid-tone and locking the result with the AE-Lock button, before recomposing the shot and taking the picture. Using the same principle, AE-L is useful when shooting subjects that are positioned off-centre. AE-Lock is also useful when you want to shoot a series of images using exactly the same exposure settings. For example, if you wish to stitch together several shots to create a panorama, it is important that the shooting parameters employed for each frame are consistent – using the AE-Lock button at the start of the sequence is the answer.



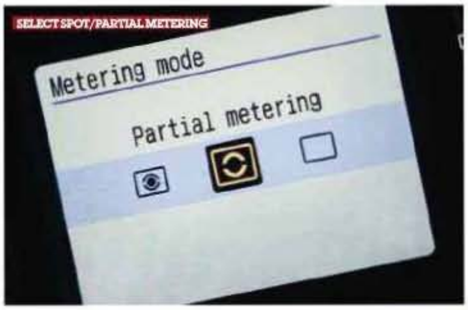
Your camera's AE-Lock button is an essential exposure aid when shooting subjects with very dark or light backgrounds that can easily fool your camera's multi-zone metering into over or underexposure. In this instance, the very dark backdrop fooled the camera into thinking the scene was darker than it actually was. As a result, it set a shutter speed longer than was required and so the subject is overexposed. In order to achieve the correct exposure for the flower, a spot meter reading was taken from the green leaves of the plant below the flower. This reading was then locked using the AE-Lock button. The image was recomposed and the image taken. The result is perfectly exposed.

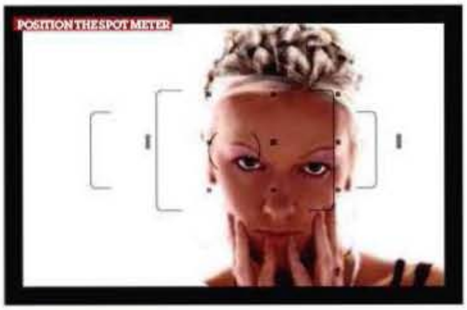
ROSS HODDINOTT

Using AE-Lock

The AE-L button, combined with spot or centre-weighted metering, is one of the most accurate forms of achieving the correct exposure settings for any given subject.

1) Select your camera's spot (or partial) meter.
2) Direct the camera so that the metering circle is positioned over the area or subject that you wish to meter from.
3) Press the shutter release button to activate your DSLR and release it.
4) Activate AE-Lock by pressing the button. Note: on some models you have to keep it depressed, so consult your user's manual. The letters 'AE-L' may display in the viewfinder to indicate the lock is activated.
5) Move the camera and recompose the image as you want. Your exposure settings will not change, even if the incoming light levels alter as a result of changing composition.
6) Fully depress the shutter release button.





RECOMPOSE AND SHOOT

BJORN THOMASSEN

Histograms: An aid to checking exposure

One of the most useful tools available to digital SLR photographers is the histogram, but it is also one of the least understood. Here we explain what function it provides and how you can use it to check exposure on location

IN BASIC TERMS, a histogram is a two-dimensional graph, often resembling a range of mountain peaks that represents an image's tonal range. While, at first glance, histograms may appear quite complex and confusing, they are actually very simple to read. They are an essential aid for digital SLR photographers striving to achieve consistently correct exposures in-camera and are a more accurate method of assessing exposure than looking at images you've taken on the LCD monitor. Therefore, if you are not already in the habit of regularly reviewing your images' histogram, it is time you did so. With the help of this guide, you will soon feel confident assessing histograms, as we cover all the key areas of histograms in an easy to understand, jargon-free language.

WHAT IS A HISTOGRAM? A histogram is a visual representation of an image's tonal range. The horizontal axis indicates the picture's extent from pure black to pure white. Pure black is represented by 0 (far left), while pure white is indicated by 255 (far right). The vertical axis illustrates exactly how many pixels have that particular value. Therefore, by simply looking at a histogram, a photographer can tell if an image is made up of mostly light, dark or mid-tones.

Histograms come in all shapes and sizes. Although their appearance is greatly dictated by the colour and tone of the subject itself, for general scenes, a histogram with a large number of pixels (or a sharp peak) grouped at either edge is an indication of poor exposure. For example, a histogram with a large number of black pixels (grouped to the left) often signifies underexposure. Consequently, subject detail will be obscured in the shadow areas. A large number of pixels grouped to the right of the histogram normally indicates an image which is overexposed. The image's highlights will burn out (or 'clip') and this detail is irretrievable. A graph with a narrow peak in the middle and no (or few) black or white pixels indicates an image lacking contrast and so the result may look flat and lifeless.

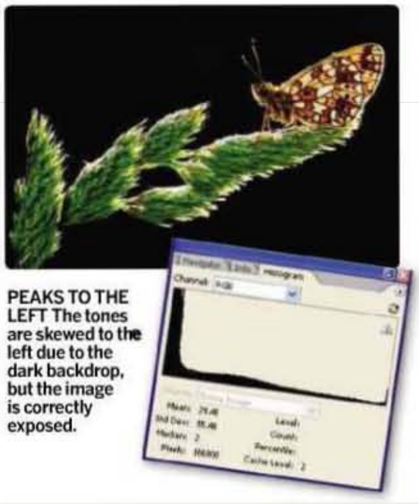
SO WHAT SHOULD A HISTOGRAM LOOK LIKE? This is tricky one to answer. Despite what some people may say, there is no such thing as the 'perfect histogram'. It simply tells us how a picture is exposed, allowing photographers to decide whether – and how – to adjust exposure settings. Therefore, a histogram of a light scene will be very different to one with predominantly black tones or one with a mix of both. However, generally speaking, a histogram should show a good spread of tones across the horizontal axis, with the majority of pixels positioned near to the middle (100). Normally, it is desirable to avoid peaks to the right-hand side of the graph, as this is usually an indication of 'burnt out' (overexposed) highlights, resulting in lost detail. When assessing a histogram, it is important to consider the brightness of the subject itself. For example, a scene or subject boasting a large percentage of light or dark tones – like snow or a silhouette – will naturally have an affect on the overall look of the resulting graph. Therefore, whilst it is possible to make recommendations, it is impossible to generalize about what is and isn't a good histogram. Whist an even spread of pixels throughout the greyscale is often considered desirable you will also need to use your own discretion.

HOW DO I CHECK A PICTURE'S HISTOGRAM? Most digital SLRs allow you to view the histogram on the LCD monitor during playback. To do this, press the playback button to view the image and then cycle through the additional photo info screens until the histogram is displayed. It's worth making this your default setting, so that you can quickly access the histogram and assess exposure immediately after taking the picture. Using the histogram is a far more reliable method of assessing exposure than looking at images on the LCD monitor, particularly when trying to view images as light that reflects off the LCD can be deceptive. A good rule, when interpreting histograms, is to strive to get a reasonable spread covering at least two thirds of the graph and avoiding sharp peaks toward either the far edges of the graph. While this might be fine in theory, in practise it's rarely that simple. Creative photographers may shoot silhouettes or high-key images, which give histograms with pixels skewed toward the far left (black) or far right (white). Equally, images of a scene or subject possessing a large percentage of light or dark tones will have a histogram weighted to one edge of the graph. In instances like this, the histogram isn't indicating an incorrectly-exposed image. It is simply representative of the style of image or subject matter.

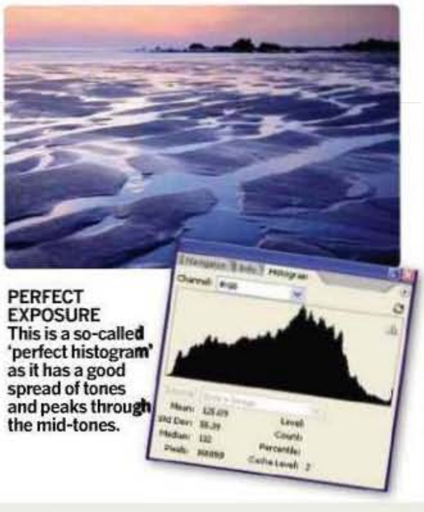
Exposure warnings

BURNT-OUT HIGHLIGHTS ALERT! Most DSLRs are designed with a playback function known as the 'highlights screen'. While histograms provide a graphic illustration of an image's tonal range, helping you assess overall exposure, the 'highlights screen' – or 'highlights alert' – is designed to help photographers avoid burning out highlights. White, or very light subjects, in direct sunlight, are especially prone to this. A histogram with a sharp peak to the far right indicates an image is suffering from areas of overexposure. However, the 'highlights alert' identifies the pixels that exceed the value for pure white (255). Pixels that do so are not given a value and are effectively discarded. When the image is replayed on the camera's LCD monitor, the pixels falling outside the camera's dynamic range flash or blink, providing a quick illustration of where picture detail is 'burnt out' and devoid of detail. To rectify this, set negative exposure compensation so the next image is recorded darker. A digital camera's highlights alert is not always switched on by default. Therefore, consult your user's manual and switch it on when you feel this type of exposure warning is useful. This can be done via the camera's Playback Menu.

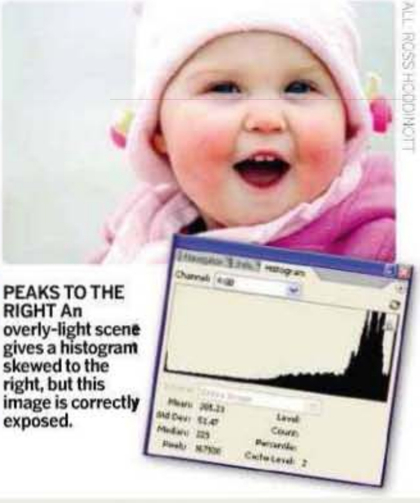
UNDERSTANDING HISTOGRAMS The following three images are all correctly exposed, yet their histograms differ greatly. The left and right histograms are similar to those of under- and overexposed images, with peaks towards the extremes, but all three are correctly exposed. It's important to learn how interpret an accurate histogram in relation to the subject matter.



PEAKS TO THE LEFT The tones are skewed to the left due to the dark backdrop, but the image is correctly exposed.

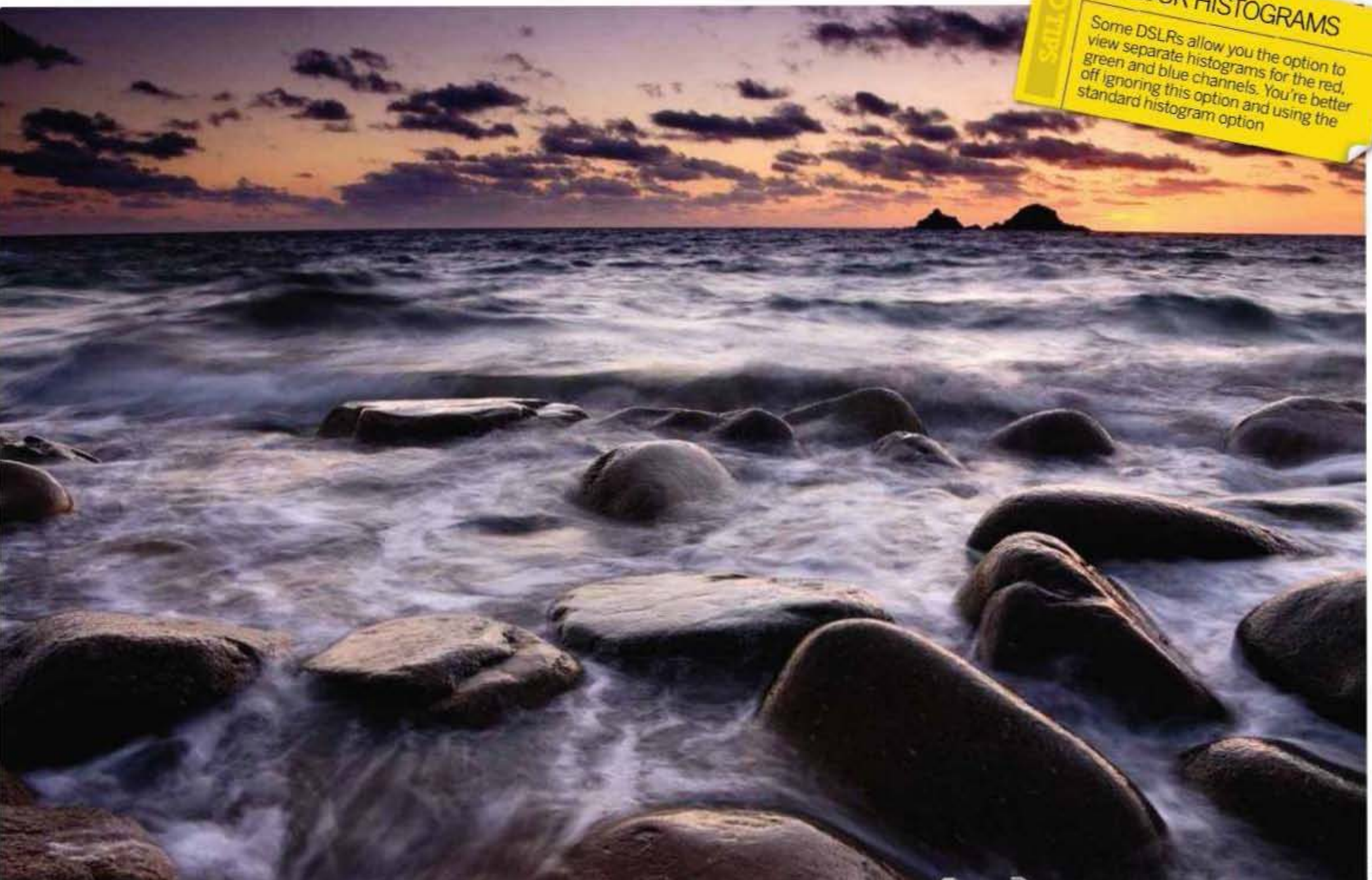


PERFECT EXPOSURE This is a so-called 'perfect histogram' as it has a good spread of tones and peaks through the mid-tones.



PEAKS TO THE RIGHT An overly-light scene gives a histogram skewed to the right, but this image is correctly exposed.

ALL: ROSS HODDINOTT



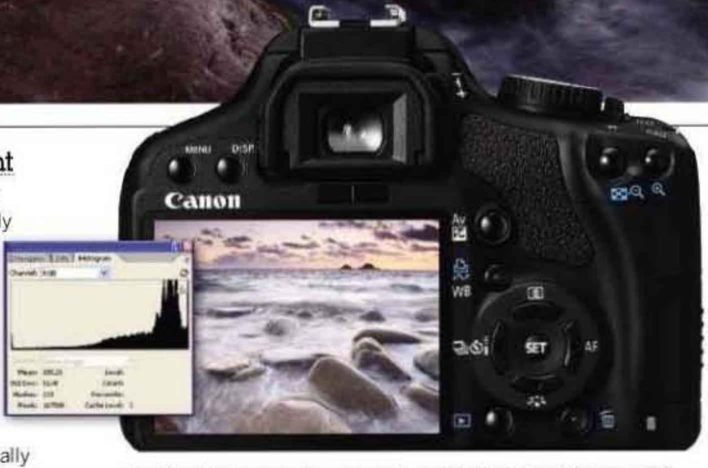
MATT WHORLOW

PRO TIPS

COLOUR HISTOGRAMS

Some DSLRs allow you the option to view separate histograms for the red, green and blue channels. You're better off ignoring this option and using the standard histogram option

Advanced Technique: Exposing to the right



'Exposing to the right' is fast becoming a widely-accepted approach to help maximise image quality – although it only applies if you shoot in Raw. With this technique you effectively push exposure settings as close to overexposure as possible without clipping the highlights. The result is a histogram with the majority of pixels to the right – hence the term 'expose to the right'.

The logic of this approach can only be understood once you appreciate that CCD and CMOS sensors count light photons in a linear fashion. Linear capture has important implications on exposure. Most digital SLRs record a 12-bit image capable of recording 4,096 tonal values over six stops. However, while you might automatically think that each f/stop of the six-stop range would record an equal amount of the tonal value total, this is not so. The level corresponds exactly to the number of photons captured, so in reality, each stop records half the light of the previous one. For example, half of the levels are devoted to the brightest stop (2,048), half of the remainder (1,024 levels) are devoted to the next stop etc. As a result, the last of the six stops only boasts 64 levels. At first, this might seem confusing and the relevancy not obvious. However, in simple terms, what it means is if you do not properly use the right side of the histogram, which represents the majority of tonal values, you are wasting up to half the available encoding levels. So if you deliberately underexpose to ensure detail is retained in the highlights – a common practice among many digital photographers – you are potentially losing a large percentage of data. Noise can be significantly increased as a result – particularly to mid-tones and shadows. This is because, when you open up the shadow areas during Raw conversion, in order to lighten an image, you have to spread the 64 levels in the darkest stop over a wider tonal range. So, while it's important not to overexpose images so the highlights blow, 'exposing to the right' is a logical approach to exposure. The method needs applying with care, and relies heavily on using the histogram to avoid 'clipping', image quality. When using this approach you may notice that images appear light and washed out on the LCD monitor. Don't worry – colour and contrast can be quickly restored during Raw conversion. 'Exposing to the right' is an advanced technique that many experienced photographers are still getting used to, so don't worry if you find it confusing. Master our basic techniques and once you're confident, give this one a try.

Shoot stunning sunsets

Ross Hoddinott provides expert advice on how to produce perfectly exposed sunset shots

PRO TIPS

BEWARE OF THE SUN!

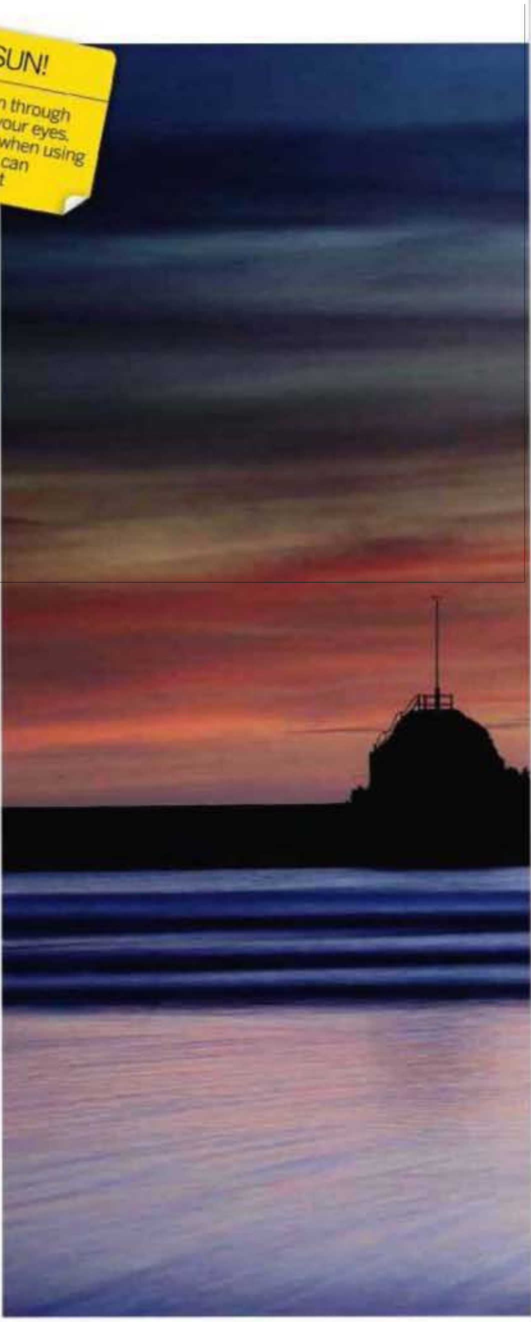
Never look directly at the sun through your lens as it may damage your eyes. The risk is most pronounced when using telephoto optics, but any lens can irreparably harm your eyesight

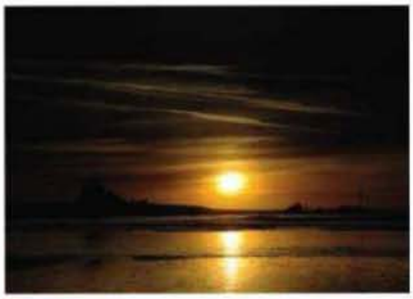
WHO CAN RESIST reaching for their camera when presented with a colourful sunset? One of nature's most photogenic spectacles, they are the result of light scattering off tiny particles in our atmosphere. Every sunset is unique, presenting photographers with fresh opportunities for eye-catching imagery. Unfortunately, it is difficult to anticipate when the sunset will be colourful – you can go weeks without a good one, and then suddenly be treated to the most amazing display of colour. Therefore, when the sunset is good, you'll need to know how best to capture it. Sunsets are notoriously tricky to photograph well though, with photographers often returning home disappointed with their results. Unless you achieve the correct exposure and White Balance, the colours you see with your eyes will not transfer accurately to your photographs.

One of the most common mistakes photographers make when shooting sunsets is to take pictures while the sun is still too high and bright in the sky. Unless the sun is heavily diffused by cloud or haze, its intensity will be too strong for your camera's sensor to record. Consequently, the sun (and the area of brightness around it) will often be grossly overexposed, or 'blown out'. This intense brightness will also fool your DSLR's metering system, making it think the overall scene is much lighter than it actually is. As a result, your camera will automatically select a shorter exposure time (faster shutter speed) and the scene will be too dark (underexposed). Lens flare can also be an issue.

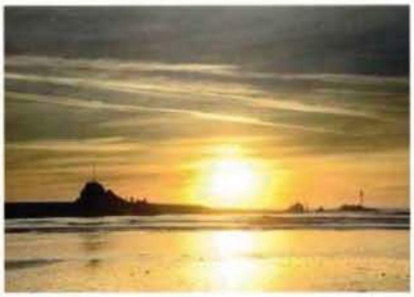
Regardless of the metering mode you employ, the issue with extreme brightness will persist. This is because the sun's intensity will always be beyond the sensor's dynamic range. It's an exposure problem that is impossible to avoid in-camera; even if you attach a graduated ND filter to lessen the sun's intensity, the rest of the sky will be recorded as artificially dark.

Excluding the sun from the frame is the only realistic answer, but this rather defeats the object of shooting the sunset. Instead, it is better to simply wait until the sun is just about to disappear behind the horizon. By then, its intensity is greatly reduced and your camera will be able to capture the scene's full range of brightnesses. Also, the colours in the sky will now increase in intensity and grow even more spectacular. The sun's afterglow is often even more impressive, so don't make the common mistake of packing up and going home as soon as the sun vanishes behind the horizon. Presuming that you have a sturdy tripod, you can continue to shoot for another 10 or 20 minutes before the sky's colours finally fade. Still unsure? Our step by step guide shows you how.

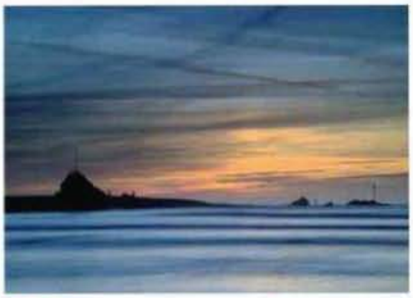




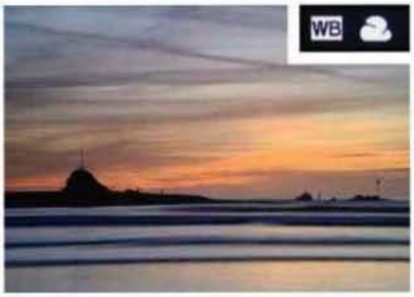
Step 1 Wispy cloud and atmospheric haze is a good sign that there might be a colourful sunset. A coastal location is often best for sunsets, as the sea and wet beach will reflect its light and colour. To the naked eye, this scene looked fantastic, but my DSLR was unable to capture the huge range of brightness. Its multi-zone meter was fooled by the sun's intensity and the scene is underexposed.



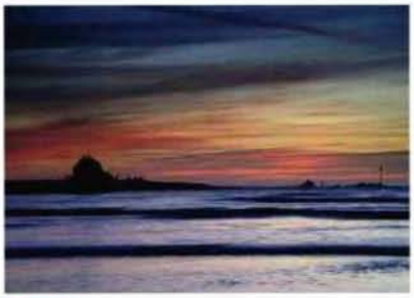
Step 2 To compensate, I switched to spot metering mode, which bases its reading on just a small portion of the frame, typically two or three percent. I pointed the spot metering circle at an area of sky towards the edge of the frame, so it wasn't affected directly by the sun's brightness. This gave a better overall exposure, but the sun and surrounding area are overexposed.



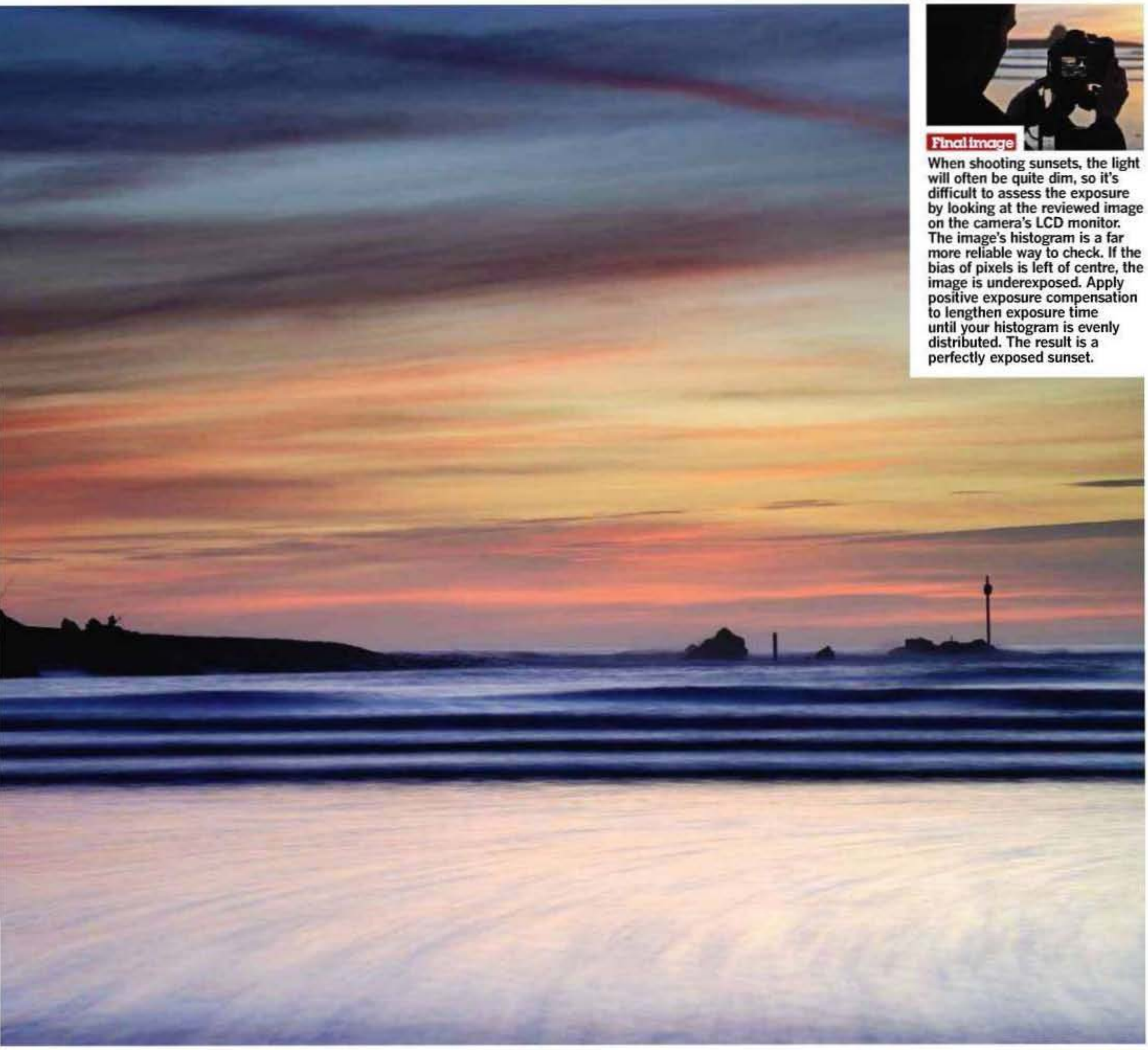
Step 3 The two previous images proved the range of brightness is beyond the sensor's dynamic range. I would need to wait until the sun was lower in the sky and less intense. Ten minutes later, the sun was low and diffused enough to continue, but Auto White Balance hasn't captured the colours accurately and has created a cool colour cast.



Step 4 Although a DSLR's Auto WB setting is quite accurate in many shooting situations, it shouldn't be relied upon. It is important to match the relevant WB preset to the appropriate lighting conditions. Therefore, I selected my camera's Cloudy preset to mimic the conditions. The result is warmer and far more authentic.



Step 5 The sky often looks most impressive after the sun has disappeared. The afterglow can last for up to half an hour, revealing rich, warm colours – so don't leave a location too soon. Note that exposure times will grow progressively longer as the sky gets darker and exposures may be seconds in length, so make sure you take a tripod with you.

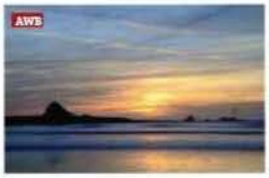


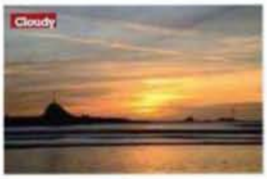
Final image

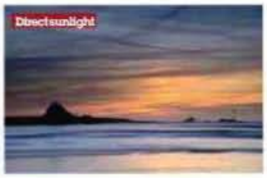
When shooting sunsets, the light will often be quite dim, so it's difficult to assess the exposure by looking at the reviewed image on the camera's LCD monitor. The image's histogram is a far more reliable way to check. If the bias of pixels is left of centre, the image is underexposed. Apply positive exposure compensation to lengthen exposure time until your histogram is evenly distributed. The result is a perfectly exposed sunset.

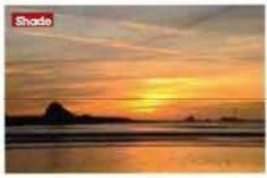
White Balance and sunsets

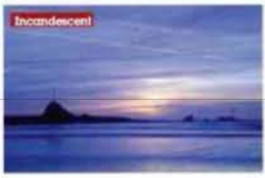
Colour temperature has a huge impact on the look and feel of your exposures. To keep the colours faithful to the original scene, it is important to manually select the White Balance preset that most closely matches the prevailing lighting conditions. Don't simply rely on the automatic setting. For example, select your camera's cloudy preset when it is overcast. White Balance can also be used as a form of in-camera filtration. By deliberately mismatching the WB setting to the scene, you can either intentionally warm up or cool down the image. For example, selecting the Shade preset will add extra warmth to sunsets, something that is often desirable. The following sequence illustrates the effect of White Balance presets on a sunset scene.

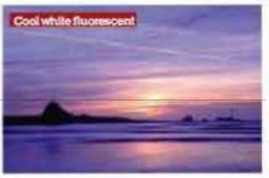












Exposing backlit subjects

Paul Stefan shows how a spot meter, reflector and fill-in flash are all tools to help you perfectly expose a backlit subject

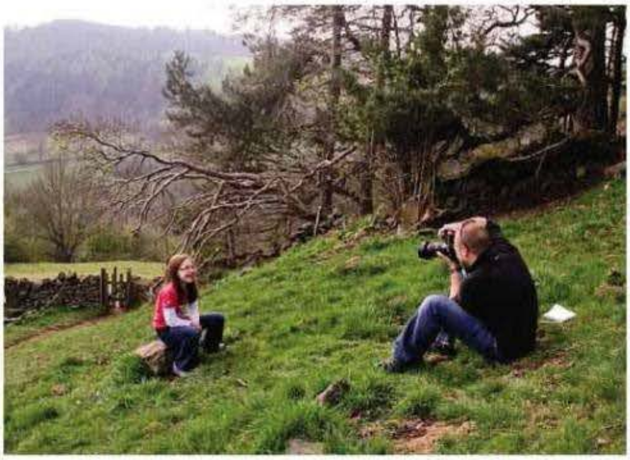
SHOOTING A BACKLIT subject (i.e. with the sun behind them) is not something I do too often, as it certainly comes with its challenges. If you're not prepared for it, your results can often be quite unpredictable and, more often than not, your subject will be underexposed and look rather flat. This tutorial for beginners will help you to understand the relatively straightforward steps you can take to end up with great results.

Let's begin with why letting the camera make the decisions for you is not the best option. It's often so easy to stick your camera on Full Auto mode and let it decide the exposure. For portraits in which the light is shining on the subject's face, or off slightly to the side, using Auto mode sometimes works just fine, as the exposure levels may not be too extreme. However, if you position your subject so that the light source is behind them (so you're shooting towards them and the sun or light source), your camera is likely to get the exposure wrong and usually underexpose the subject.

This happens because the camera's multi-zone exposure system will evaluate the overall scene. Given that you are pointing the camera towards the light source, it will always look to expose the shot for a bright scene, causing the darker areas – in this case the person – to be underexposed.

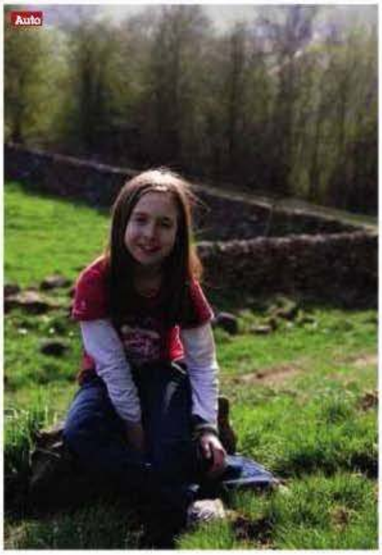
Taking more control over your camera will greatly improve the image and enable you to get the exposure you really want. One of the easiest ways for beginners to do this is to set your DSLR to aperture-priority and use the spot meter along with AE Lock to fix the light reading. With this method, you take a spot reading from the person's face, regardless of the light conditions around the subject, which should result in a perfectly exposed person every time (assuming your subject has Caucasian skin – if not, take a spot meter reading off clothing, grass or any area of mid-tone in the same lighting conditions).

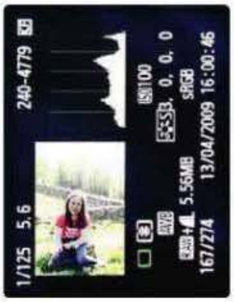
While this is an easy and quick method, it doesn't come without issues. For example, if the surrounding scene is also important for the shot, you may find that it turns out to be overexposed if it's lighter than your subject. One way around this would be to take the meter reading from an in-between subject and then use your camera's flash to fill the foreground in with light, giving a more balanced exposure across the whole scene. Equally, a reflector will also help this, as it will bounce natural light back towards your subject and have a similar fill-in effect. If you're feeling really adventurous, why not try a mixture, using both flash and a reflector.



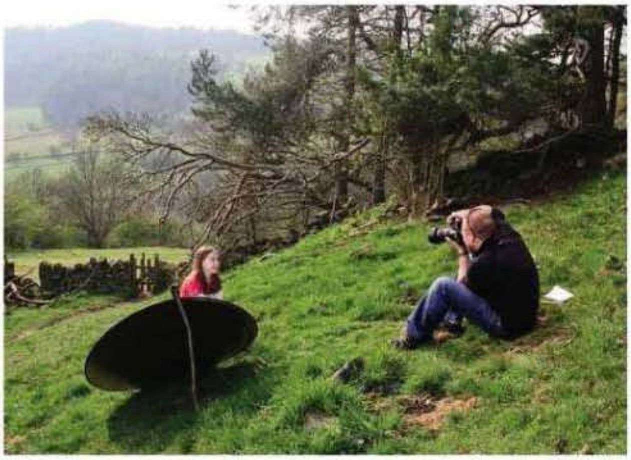
1) TAKE A SHOT WITH DSLR SET TO AUTO

I was keen for my portrait to have a picturesque backdrop, so I chose a south-facing hillside near my home, with a view looking out to Robin Hood's Stride and Cratcliffe in the Peak District. My first shot was to see how the camera's Auto mode handled the exposure of my subject with the sun directly behind and above her. With this set-up, I was shooting towards the sun, which would certainly challenge the camera's multi-zone metering system.



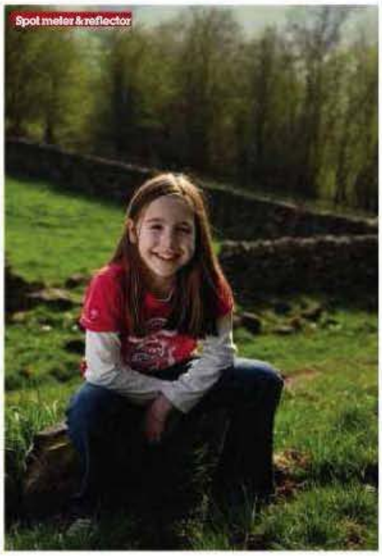


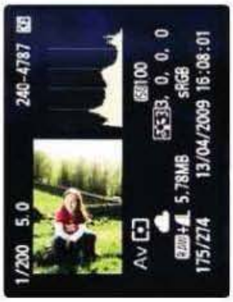
The result from my DSLR wasn't too bad. The face of my subject, my eldest daughter Emily, wasn't completely underexposed but could definitely do with some improvement. This would have been much worse if the sun was lower and in direct view of the shot. Other DSLRs may not have coped as well as my Canon EOS 5D MkII either.



2) USE SPOT METERING AND A REFLECTOR

The Auto shot wasn't a disaster, but it could have certainly been improved with the use of spot metering. By switching my DSLR to aperture-priority and setting the metering mode to spot, I was then able to meter from Emily's face and lock the reading using AE-Lock. I did this by looking through the viewfinder and placing the central circle over her face and pressing AE-Lock to ensure a perfect exposure. I then focused on her face, recomposed and took the shot.

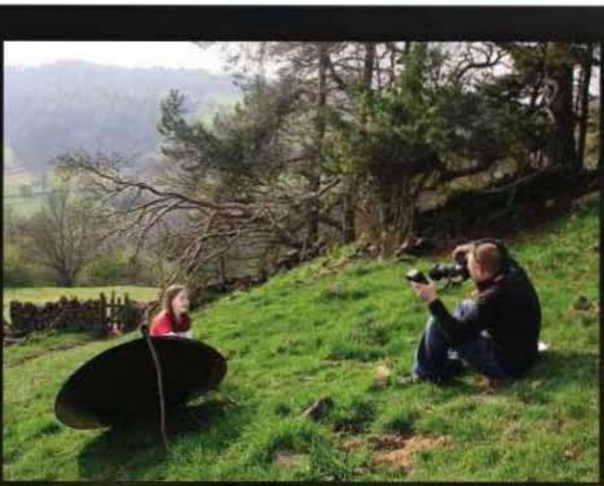




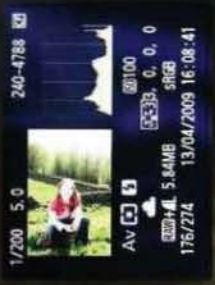
Spot metering has improved the scene greatly, but to make it even better, I placed a portable reflector just out of shot, perched on a stick, to throw some of that lovely warm sunlight back onto Emily's face, giving the shot added depth. This really made a difference, revealing so much more detail and depth, both in her face and in her clothes.

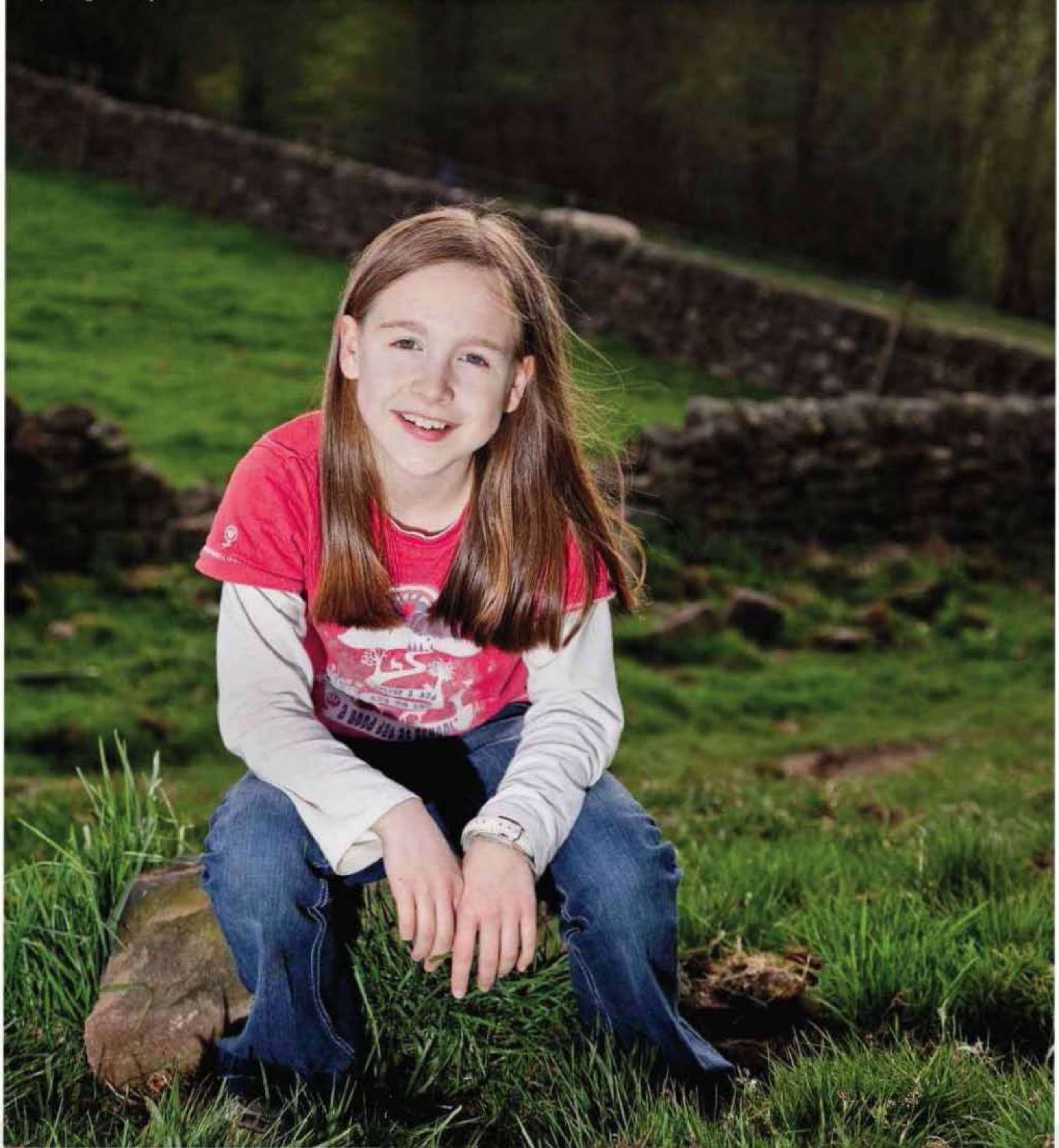
3) USING FILL-IN FLASH

I liked the natural look of the spot metered and reflector shot, but for this example I wanted to show a further change to the set-up, to create a more dramatic portrait. Therefore, I hooked up my flashgun to my camera with a stretchy sync lead, to allow me to hold the flash unit away from the camera and over to one side. This is a useful technique that causes your flash to give a more flattering look to the subject, rather than blasting them directly in the face! With this set-up, I also left the reflector in place, used the same exposure settings from the previous shot and directed the flashgun toward Emily's body, rather than pointing it directly at her face.



The flash has made quite an impact on how she is lit. Her face is a lot brighter, but because I aimed the flashgun towards her body and feet, the shot has exposed her lower half so much better than the previous shot. Her hair is also really well exposed and she now has catchlights in her eyes, caused by the flash.





Shooting a scene with lots of sky

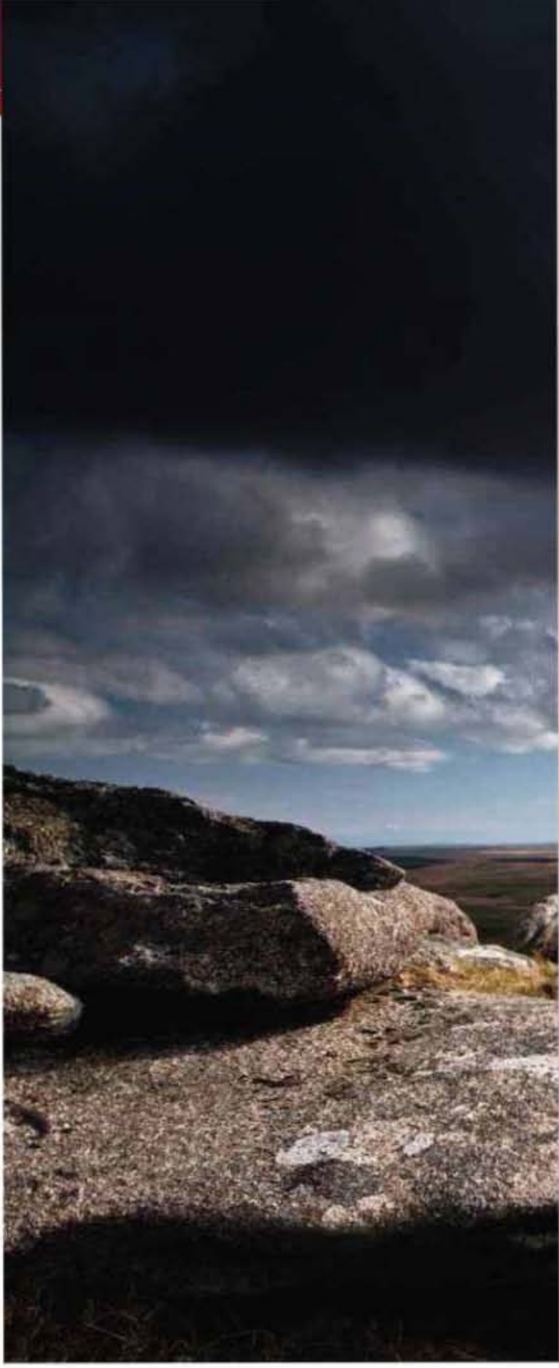
Ross Hoddinott explains how to use ND grad filters to achieve a perfect exposure in a scene in which the sky is far brighter than the foreground

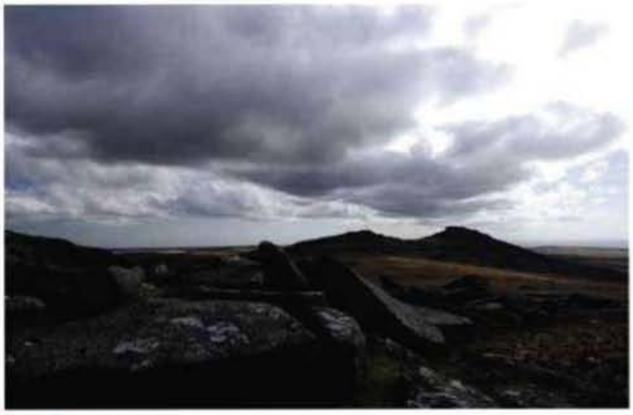
INCLUDING LOTS OF sky can add drama and impact to your landscapes, particularly in stormy conditions or when there is an amazing cloud formation. Placing the emphasis on the sky rather than the foreground can prove very effective. However, achieving a correct exposure can be tricky as typically, the sky is brighter than the land. The difference can be negligible, but it *can* amount to several stops, which will cause exposure problems. If your multi-zone metering system biases its reading for the sky, the exposure will be shorter, underexposing the foreground, but if you correctly meter for the land, the longer exposure will blow out the sky.

When shooting a scene with more sky than foreground, multi-zone metering (such as Evaluative or Matrix) can struggle. Metering systems try to record subjects as a mid-tone, so will assess the scene and typically produce an image in which nothing is quite exposed correctly; the sky is slightly overexposed, and the land slightly underexposed. Even if you switch metering modes, problems will arise. For example, 'spot', the most accurate form of metering, calculates exposure from a circle covering just two to three percent of the frame. By pointing the spot metering sensor at the part of the scene you wish to base your exposure from, you'll get a very precise reading. However, in situations like this – when the scene's range of brightness exceeds the sensor's dynamic range – you will encounter problems with exposure regardless of what you do. Spot meter from the sky and the foreground will be underexposed. In contrast, if you take a spot meter reading from a mid-tone in the foreground (like grass), the land will now be correctly exposed, but the sky washed out. It's a no win situation. Different metering patterns, or using exposure compensation, will not solve the problem of shooting unevenly lit landscapes. Don't panic, though – the problem is relatively easy to correct. Firstly, you can take two identical images – one exposed for the foreground and one for the brighter sky – and merge them on your computer. However, most landscape photographers prefer to correct the problem in-camera using Neutral Density (ND) graduated filters. These filters are half-clear and half-coated with a transitional zone where they meet. The neutral density coating is designed to absorb light, so by positioning it in the filter holder so that the coated area covers the sky, you can balance the exposure and achieve a correct exposure throughout the scene with one frame and without the hassle of having to blend images. Graduated NDs are available in different densities to suit different lighting conditions – a 0.3ND equals a one-stop exposure reduction, 0.6ND a two-stop and 0.9ND equates to three stops. To show you how to solve the problem of shooting an unevenly-lit scene, boasting a large sky, I headed out to the rugged beauty of Roughtor on Bodmin moor with my Lee Filters 100mm ND graduate set.

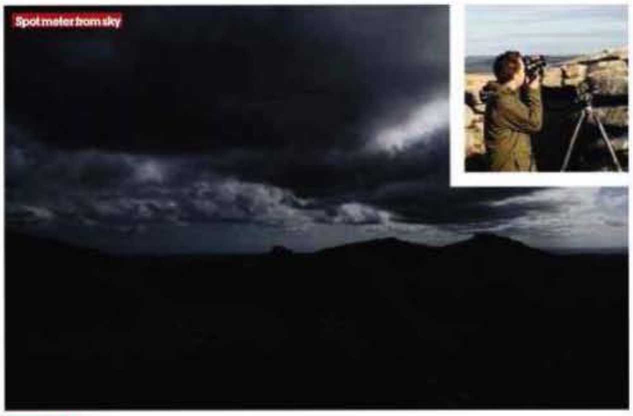
Graduated ND filters

Graduated neutral density filters (ND) are available in two types of transition: hard and soft. The soft type has a feathered edge, providing a more gentle transition suited to scenes with a broken horizon (the filter won't significantly darken objects breaking the horizon, such as a building or tree). A hard ND has a more sudden transition, ideal if the horizon is straight. This allows you to reduce the brightness of the sky with greater accuracy.

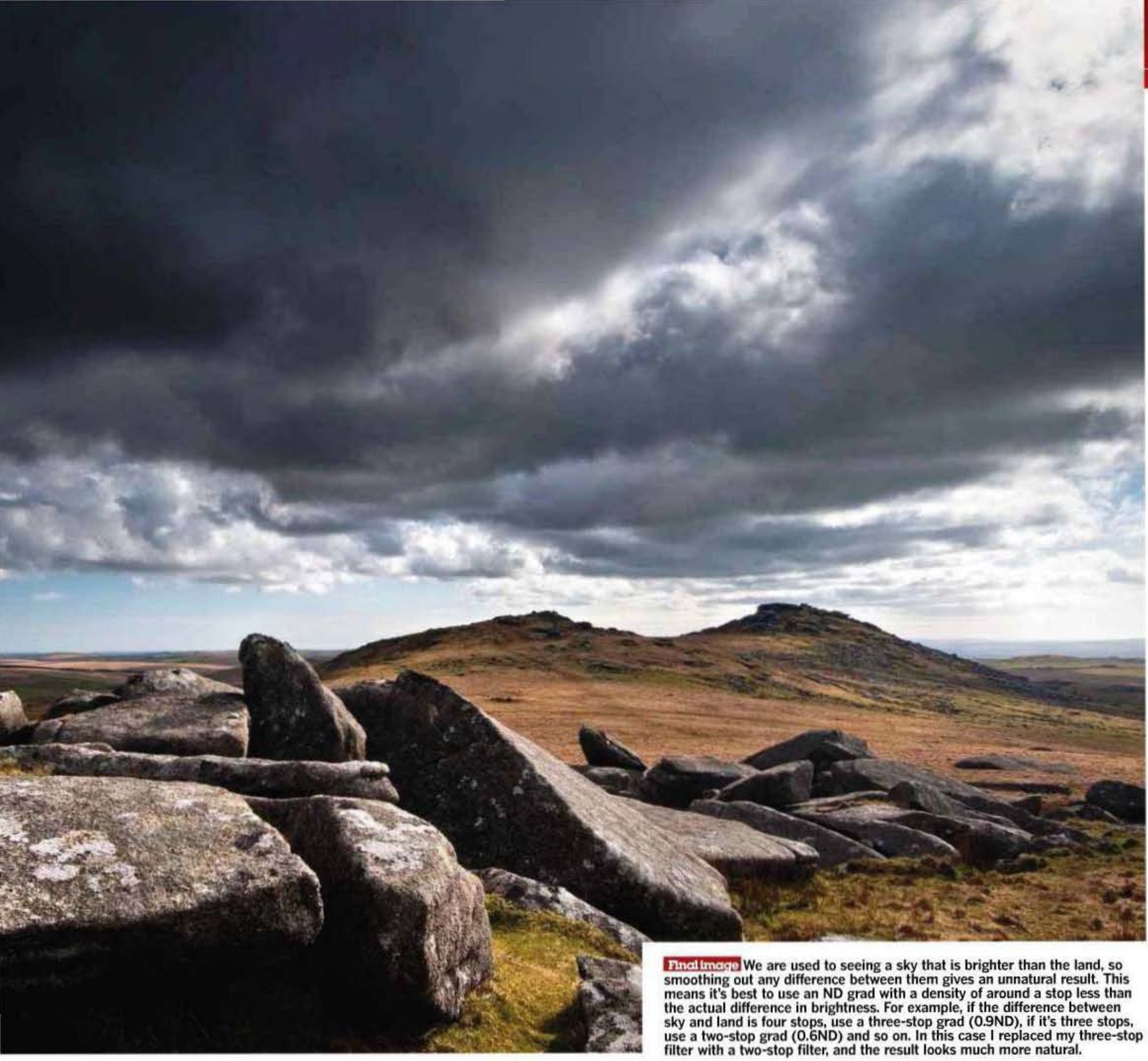




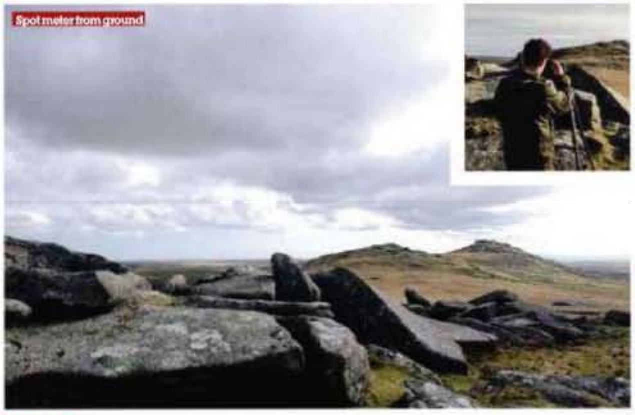
Step 1 It was a stormy evening when I visited Roughtor, so I decided to include more sky than foreground. I settled on a simple composition, using the granite outcrops as foreground interest. I set my Nikon D300 to aperture-priority, selecting an aperture of f/16 for a deep depth-of-field and the camera set to a shutter speed of 1/40sec. However, the result is poor. The foreground underexposed and the highlights in the sky washed out.



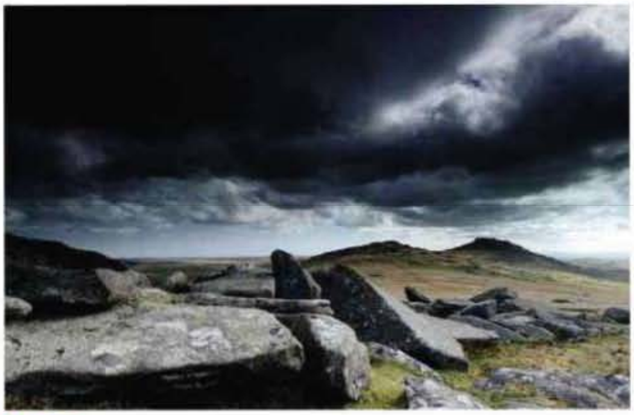
Step 2 In order to prevent highlights in the sky from burning out, I decided to take a spot meter reading from the sky. I switched my DSLR to spot metering and took a reading from a bright region of the sky. This gave me a shutter speed of 1/80sec. I locked this setting by pressing the AE-L button, and took another shot. The bright regions of sky were now correctly exposed, but as a result of using a shorter exposure, the rest of the scene is now even darker.



Final image We are used to seeing a sky that is brighter than the land, so smoothing out any difference between them gives an unnatural result. This means it's best to use an ND grad with a density of around a stop less than the actual difference in brightness. For example, if the difference between sky and land is four stops, use a three-stop grad (0.9ND), if it's three stops, use a two-stop grad (0.6ND) and so on. In this case I replaced my three-stop filter with a two-stop filter, and the result looks much more natural.



Step 3 The scene's range of brightness was too great for my DSLR's dynamic range. To show this, I took another shot, this time correctly metering for the foreground. I spot metered from the granite, giving me an exposure time of 1/10sec – again at f/16. The detail in the rock was good but, as anticipated, the longer exposure blew out the sky, ruining the image. I could have merged these two exposures in Photoshop, but I wanted to a 'perfect' exposure in-camera.



Step 4 If the sky is brighter than the land, you can balance the exposure by positioning the graduated zone of an ND grad filter over the lighter sky. In this instance, the difference in exposure between the land (1/10sec) and sky (1/80sec) amounted to three stops. So, I positioned a three-stop graduated ND filter in my camera's filter system, carefully aligning the transitional zone with the horizon. However, the result looks a little too even and unnatural.

The basic principles of apertures

What is an aperture? How do you control it? What does it actually do? All these questions and more are answered in an easy to follow, jargon-free style

WHAT IS AN APERTURE?

An aperture is the iris within a lens that controls the amount of light allowed to pass from the front to the rear of the lens. A wide aperture allows lots of light through, while a narrow aperture restricts the amount of light. The various aperture settings appear as f/numbers, which you'll see on your LCD monitor and in the viewfinder. There's a long-winded and boring scientific explanation for f/numbers, but let's keep it simple and stick to the fact that they indicate the size of the aperture. A low f/number, such as f/4, indicates a wide aperture while a high f/number like f/22 indicates a small aperture.

WHAT DOES THE APERTURE DO AND HOW DO I CONTROL IT?

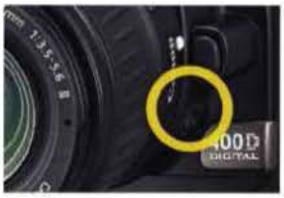
You can compare the function of an aperture to the pupil of your eye. In low light your pupil widens to allow more light to reach the retina, while in bright light it constricts to limit the amount of light passing through. When left to function automatically, a DSLR works in a similar way, selecting the aperture size (and corresponding shutter speed) that is required to give the correct exposure. If you're completely new to digital SLR photography, it's understandable that you may have left the camera set to Program or Full Auto mode, leaving the camera to control the aperture selection. But if you have a little faith in what you're reading here, believe us when we say that moving the dial from P to A (or Av) and trying out aperture-priority mode will allow you to take a big step forward in your photography, and the major improvements you'll make will be far easier to achieve than you think.

Setting aperture-priority AE (A or Av) moves the camera into a semi-automatic mode. You'll decide the aperture and the camera will automatically select the shutter speed that is required. So you've no complicated calculations to make as the camera will still take care of working out the correct exposure. However, you'll have the major benefit of being able to influence how the image looks depending on your choice of the aperture. How? You'll find out soon enough! So, we can see that the principle job of an aperture is to determine how much light you allow through at any given time. And how we change the aperture is extremely easy – select A or Av on your camera and you're in control.

The important thing we now have to grasp is how the aperture we choose affects two very important aspects of the image: the exposure and the amount of depth-of-field within a scene. We'll see how shortly.

The depth-of-field preview button

To ensure the viewfinder is at its brightest – to assist viewing and focusing, DSLRs are designed to automatically set the lens's fastest (maximum) aperture. As a result, what you see through the viewfinder isn't normally a true representation of the depth-of-field that will actually be achieved. The depth-of -field preview button works by stopping the lens down to the selected aperture (f/stop). When you do this, the scene will darken in the viewfinder. The smaller the aperture, the darker the preview, but you will be able to assess whether the selected f/number provides sufficient depth-of-field. If not, adjust the aperture accordingly. Whilst this function can take a while to get used to, it can prove highly useful. However, it may be helpful to reduce apertures gradually, stop by stop, so that changes in depth-of-field are more obvious. It is worth noting that not all cameras have this facility. If yours doesn't, assess the depth-of-field by shooting a test shot and reviewing the image on your camera's LCD monitor instead.



Setting apertures on your DSLR

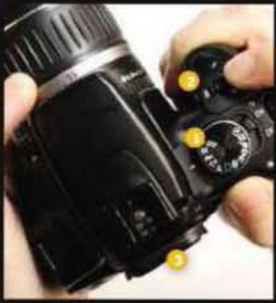
As you'll discover, selecting the aperture on your digital SLR is simply a matter of setting aperture-priority and rotating a dial!

CANON EOS DSLRS

(1) Set the exposure mode dial on the top-plate to Av to select aperture-priority mode

(2) Turning the input dial just behind the shutter button allows you to select the aperture value

(3) You can see the aperture setting by looking at the information display on the rear LCD or the information panel in the viewfinder display

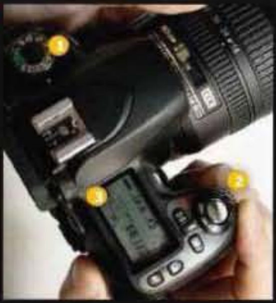


NIKON DSLRS

(1) Set the exposure mode dial on the top-plate to A to select aperture-priority mode

(2) Turning the input dial on the front of the handgrip allows you to select the aperture value

(3) You can see the aperture setting by looking at the top-plate or real LCD or the information panel in the viewfinder display

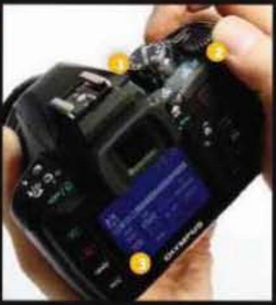


OLYMPUS E-SERIES DSLRS

(1) Set the exposure mode dial on the left-hand side of the top-plate to A to select aperture-priority mode

(2) Turning the input wheel on the top right of the camera allows you to select the aperture value

(3) You can see the aperture setting by looking at the rear LCD monitor or the information panel in the viewfinder display

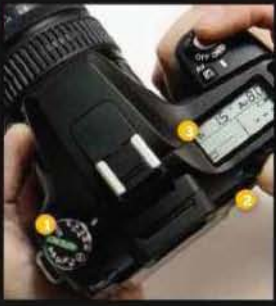


PENTAX K-SERIES DSLRS

(1) Set the exposure mode dial on the top-plate to Av to select aperture-priority mode

(2) Turning the input dial on the rear of the camera with your right thumb allows you to select the aperture value

(3) You can see the aperture setting by looking at the top-plate or rear LCD or the information panel in the viewfinder display

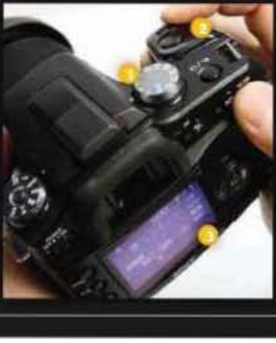


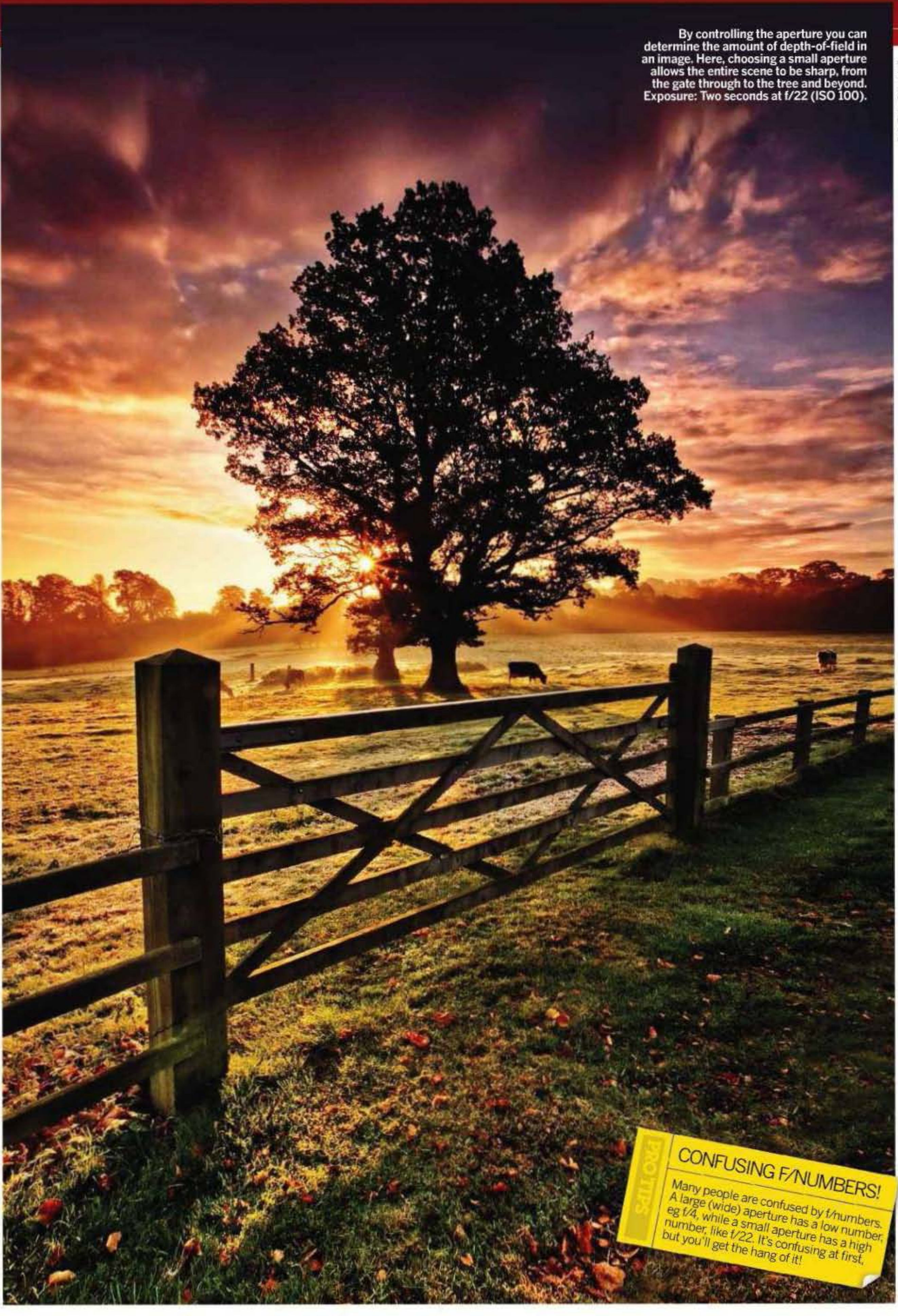
SONY ALPHA DSLRS

(1) Set the exposure mode dial on the top-plate to A to select aperture-priority mode

(2) Turning the input dial on the top of the handgrip just in front of the shutter button allows you to select the aperture value

(3) You can see the aperture setting by looking at the rear LCD monitor or information panel in the viewfinder display





By controlling the aperture you can determine the amount of depth-of-field in an image. Here, choosing a small aperture allows the entire scene to be sharp, from the gate through to the tree and beyond. Exposure: Two seconds at f/22 (ISO 100).

GARY McPARLAND

PRO TIPS

CONFUSING F/NUMBERS!

Many people are confused by f/numbers. A large (wide) aperture has a low number, eg f/4, while a small aperture has a high number, like f/22. It's confusing at first, but you'll get the hang of it!

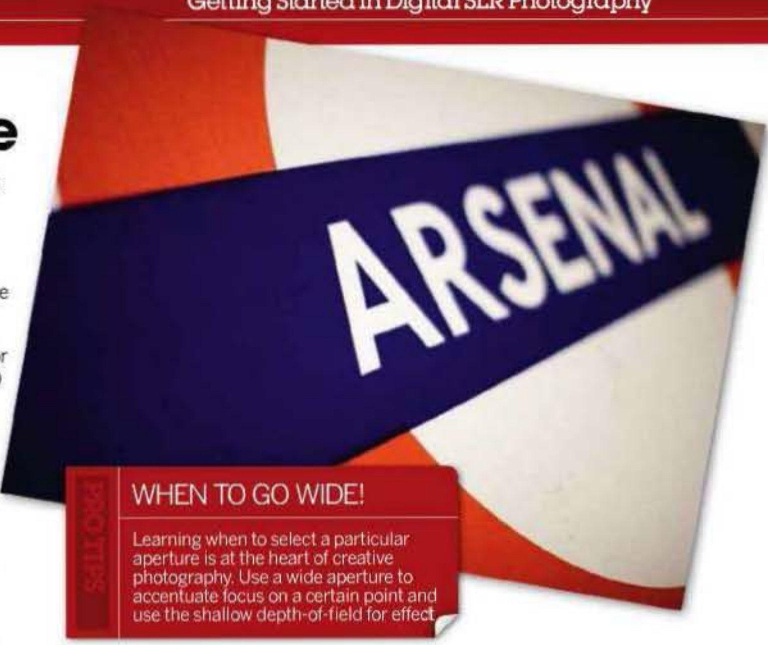
Apertures and exposure

Knowing how aperture settings affect the exposure is one of the first things you need to get to grips with

EVERY EXPOSURE YOU make is determined by three key variables: aperture, shutter speed and ISO rating. When you take a picture in aperture-priority mode, the ISO rating remains 'fixed' unless you change it yourself, in other words the ISO is not influenced by the aperture setting you select. However, that's not true of the shutter speed, which automatically increases or decreases to provide the correct exposure for the aperture that you select. You can see for yourself by setting Av (or A) on your camera and rotating the input dial to change the aperture.

As you open up the aperture to a wide setting, you allow more light through, so the camera reacts by giving a faster shutter speed, while closing the aperture so it restricts the light means the camera sets a slower shutter speed. It's important to experiment and understand this balance as it is a fundamental part of exposures. Knowing how it works will help you shoot more creatively.

In average lighting conditions, you'll find that you can choose most apertures and take pictures without any problems. But in low or bright light, the camera's choice of shutter speed can present you with some problems. Understanding how the aperture setting controls the amount of light passing through the lens will help you overcome them.



PRO TIPS

WHEN TO GO WIDE!

Learning when to select a particular aperture is at the heart of creative photography. Use a wide aperture to accentuate focus on a certain point and use the shallow depth-of-field for effect

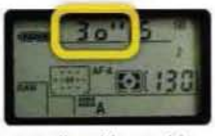
Apertures and low-light conditions

When you're shooting indoors or in low light, you will be working with a limited amount of available light and need to take the appropriate action. Assuming you're not using flash, the key thing to do is to have an exposure that doesn't suffer from camera shake. The two best ways to do this are as follows:

1) SET A WIDE APERTURE AND INCREASE THE ISO RATING Select the widest aperture to give the fastest possible shutter speed. If it's still too slow, increase the ISO rating until you have a fast enough shutter speed. This is the best approach if handholding the camera, but using the method below will give higher quality results.

This portrait was taken in very dark conditions, requiring an aperture of f/1.2 at ISO 800 to give a sharp result. Note how minimal the depth-of-field is and the drop-off of in sharpness.

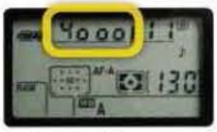
2) USE A TRIPOD! Place your DSLR on a tripod (or other support) and you'll get far better results that the first method, because you can shoot at a lower ISO rating for optimum colour and minimum noise. Also, you're not limited to using a wide aperture so can choose a mid-aperture setting for the best sharpness.



LOW LIGHT-LEVEL WARNING! You may sometimes see the shutter speed flashing in the viewfinder or on the LCD when shooting in low light. This indicates that the camera has selected the slowest shutter speed in its range but still can't give the correct exposure, because an even longer exposure than it's capable of setting is required. The two ways around this are to select a wider aperture and/or increase the ISO until the flashing stops.

Apertures and bright conditions

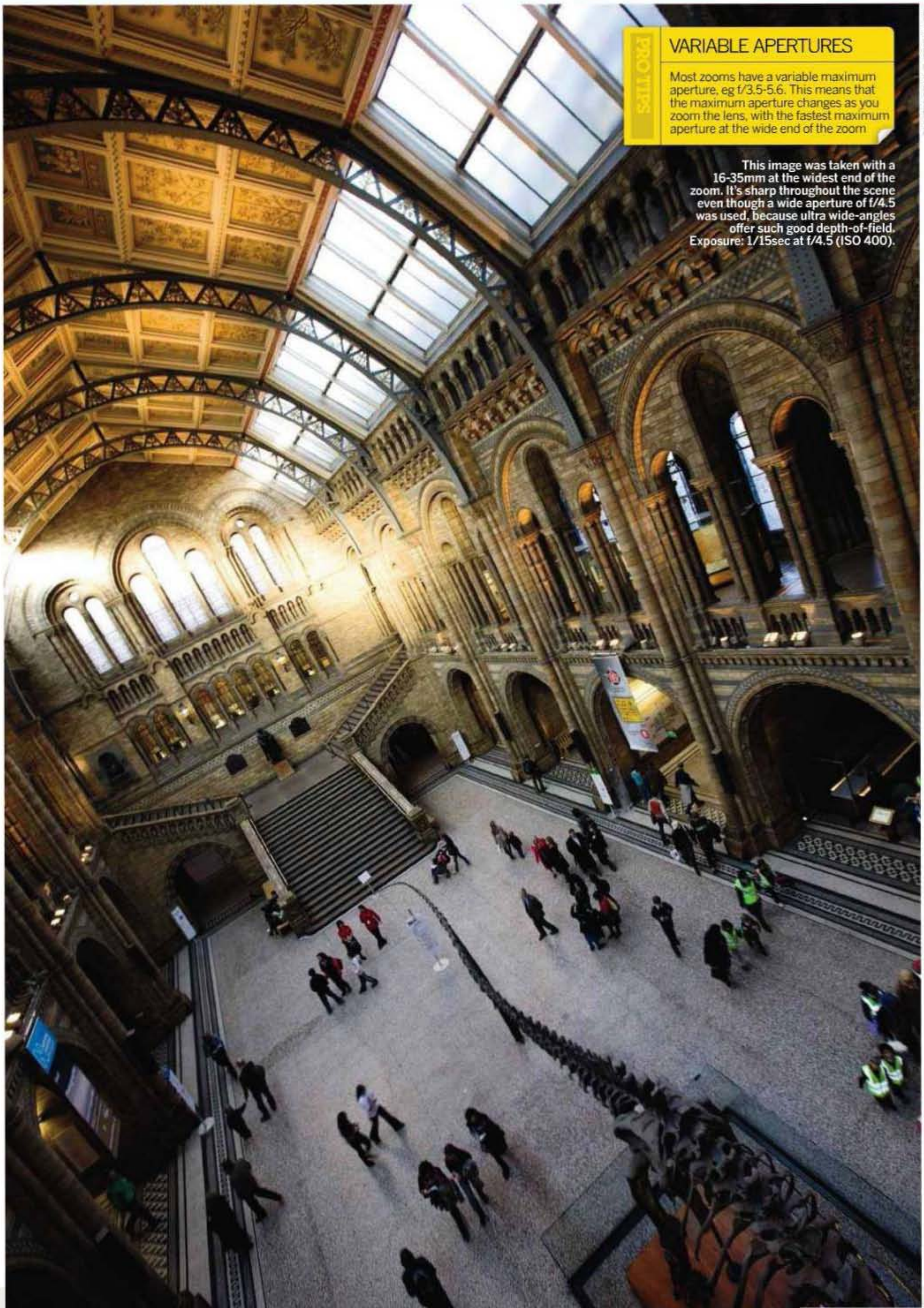
Bright lighting conditions are much easier to work in than low light, as you have far more options in terms of what aperture settings you can use. Choose an aperture that gives the results you want but ensure the shutter speed remains fast enough to avoid camera shake.



TOO BRIGHT WARNING! It's uncommon you'll ever have this happen, but you may see the shutter speed flashing when shooting in bright light. This indicates that the camera has selected the top shutter speed but it's still not fast enough to give a correct exposure for the aperture you've chosen. This is often because you've left the ISO rating at a very high setting while shooting indoors, so lower this and/or use a smaller aperture.

Aperture terminology

- **'Close down'** the aperture is another way of saying select a smaller aperture
- **'Open up'** the aperture is another way of saying use a wider aperture
- The **'maximum aperture'** is the widest aperture setting on a lens
- The **'minimum aperture'** is the smallest aperture setting on a lens
- A **'fast'** lens is one that has a wider than normal maximum aperture for the lens type. It usually refers to those with an f/2.8 or faster maximum aperture



PRO TIPS

VARIABLE APERTURES

Most zooms have a variable maximum aperture, eg f/3.5-5.6. This means that the maximum aperture changes as you zoom the lens, with the fastest maximum aperture at the wide end of the zoom

This image was taken with a 16-35mm at the widest end of the zoom. It's sharp throughout the scene even though a wide aperture of f/4.5 was used, because ultra wide-angles offer such good depth-of-field. Exposure: 1/15sec at f/4.5 (ISO 400).

ALL IMAGES: DANIEL LEZANO

Apertures and depth-of-field

For real creative control, practise using different aperture settings and see how sharpness changes within the scene

THE RELATIONSHIP BETWEEN apertures and depth-of-field is quite possibly the most important thing for you to get to grips with in photography. Thankfully, it's very easy to understand: here's a quick explanation. Depth-of-field relates to the area in front of and behind the point of focus that appears sharp. The depth-of-field in a scene is determined by a number of factors, including the focal length of the lens you use and how far away the subject is, but most importantly by the choice of aperture you decide to use. So if you set the lens to the maximum aperture (i.e. its widest setting) you minimise the amount of depth-of-field. Set the lens to progressively smaller apertures to increase depth-of-field and apparent sharpness throughout the frame, with the minimum (smallest) aperture giving the most amount of depth-of-field.

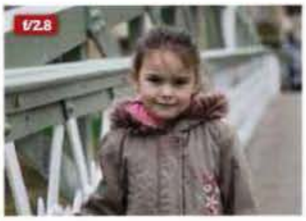
With some images, you'll see everything from the nearest blade of grass to the distant mountains in focus. A lens can only focus at a certain distance, so getting a deep depth-of-field and sharpness maintained throughout a scene comes down to selecting the right small aperture.

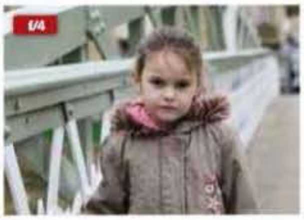
You can see the affect of using a wide aperture in images that have a shallow depth-of-field, where there is only a single point in the scene that's sharp and the rest of it thrown out of focus. The choice of aperture you'll use will really depend on what you're trying to show in your images and there are no hard and fast rules, although there are some generalisations that can be made. For instance, landscape photographers often want the entire scene to appear sharp, so will usually opt for a small aperture, while portrait photographers want to isolate the subject from the background, so opt for a wide aperture, so that the subject's sharp against a blurred backdrop.

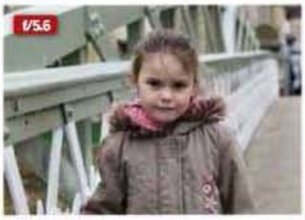
As you can see, knowing how to use apertures can have a major effect on the way a scene is recorded, so trying out different aperture settings for different scenarios can really help to improve your creative skills. As you'll see from the images in this guide, simply by practising with different apertures, you'll increase your understanding of how some apertures suit certain subjects.

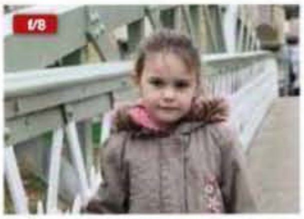
Depth-of-field

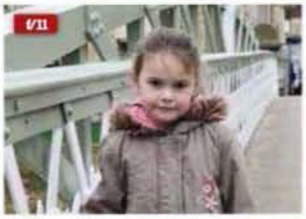
For this comparison set, the lens (28-70mm set to 70mm) was focused on the girl's face. The only thing that was changed was the aperture setting, in full stops from f/2.8 to f/22. Note how the railings behind the subject become progressively sharper as the aperture is closed down.

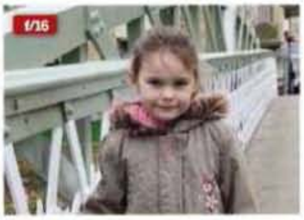


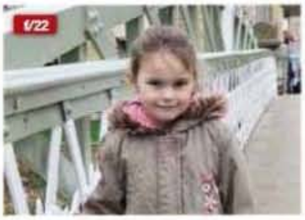


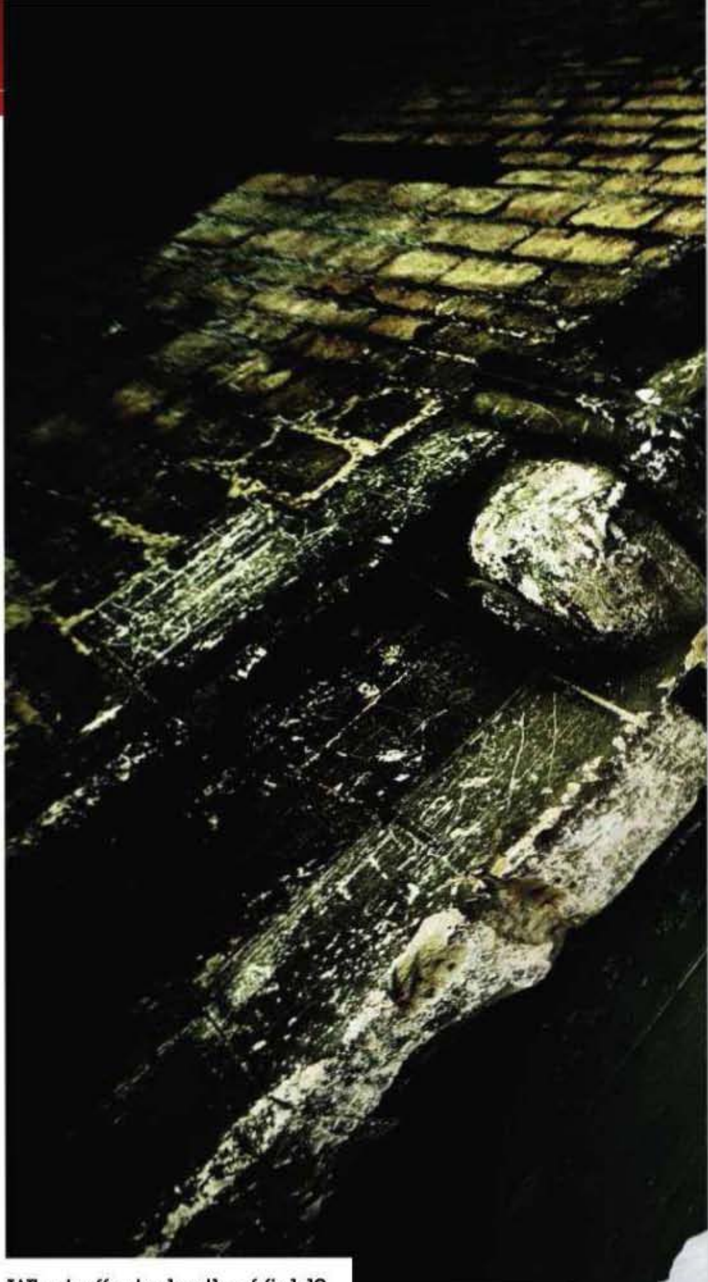












What affects depth-of-field?

For any given aperture, you'll find that both of the following will affect the amount of depth-of-field that appears in a scene.

LENS CHOICE Wide-angles give more pereived depth-of-field than a telephoto at the same aperture setting. So f/4 with a 28mm lens gives more depth-of-field than f/4 at 200mm!

SUBJECT-TO-CAMERA DISTANCE The closer the subject is to the camera, the less depth-of-field the image will have.

ROSS HODDINOTT

A telephoto lens produced very shallow depth-of-field even when an aperture of f/8 was used. Exposure: 1/350sec at f/8 (ISO 200).

The excellent depth-of-field capabilities of a 12-24mm zoom allowed the doorway and brickwork to be recorded using a mid-aperture setting of f/8. Exposure: 1/30sec at f/8 (ISO 100).

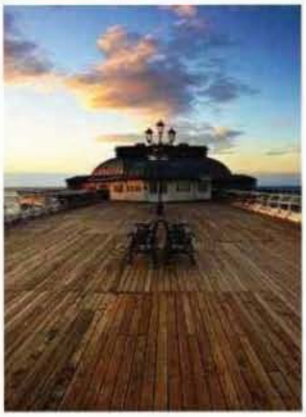
BJORN THOMASSEN

Apertures and 'sharpness'

We've already assessed how choosing a small aperture increases depth-of-field, which boosts sharpness throughout the scene. It's also worth noting how apertures can affect sharpness in two other ways...

OPTIMUM LENS SHARPNESS
Every lens has an optimum setting to give the very sharpest results and in the majority of instances, this is between f/8 and f/13.

DIFFRACTION While a small aperture gives more depth-of-field, it can also lead to inferior optical quality, so the benefit of one is cancelled out by the other. This usually happens when f/16 or smaller is used. The effect varies from lens to lens and is only really noticeable in very large prints.



CHRIS HERRING

Apertures: Quick reference guide

There's a lot to take in about apertures but with a little practise it should all make more sense in no time at all. However, below is a very quick summary guide for when you need a very quick reference

USE A WIDE APERTURE WHEN...

✓ You're shooting in low-light and handholding the camera
✓ **You want to minimise the depth-of-field**
✓ You want to keep shutter speeds as fast as possible
✓ **You want to keep the ISO rating low to optimise quality**

USE A MID-APERTURE WHEN...

✓ You want to optimise quality and are not concerned so much about the amount of depth-of-field in the scene

USE A SMALL APERTURE WHEN...

✓ You want the maximum amount of depth-of-field

Aperture-priority & landscapes

Landscape specialist Lee Frost shows why aperture-priority is the most practical exposure mode to use when shooting scenics

ONE OF THE FUNDAMENTALS of successful landscape photography is being able to control and assess depth-of-field, to ensure that the image is sharp from front-to-back.

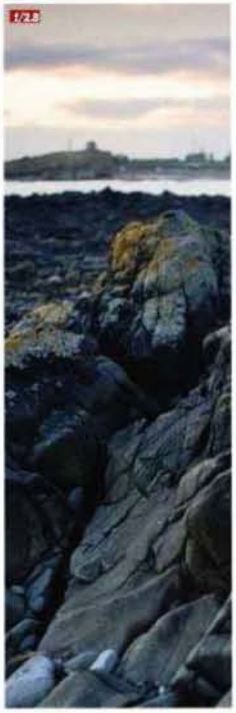
Aperture-priority mode helps you to achieve this, not only by forcing you to think about which aperture to set, but also by making sure that once it is set, that aperture won't change if light levels fluctuate or you attach filters to the lens. If the exposure has to be adjusted when shooting in aperture-priority mode, the camera does it by changing the shutter speed, so the aperture remains constant. This is vitally important because achieving extensive depth-of-field is not just about aperture selection, but also focusing distance, and a careful balancing act between the two is required to ensure the best possible results. You could take every picture at f/22, with the lens set to infinity, and most wide-angle shots would end up with front-to-back sharpness. Unfortunately, this simple approach doesn't always work – so you're not going to get the best results. Wide-angles and zooms tend to give their worst optical performance when at minimum aperture and their best mid-range around f/8 to f/13, so ideally you should shoot as close to these settings as you can to achieve optimum optical quality, and focus the lens at a distance that maximises depth-of-field at that aperture.

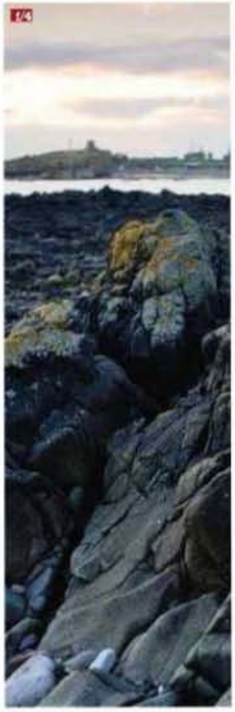
My favourite technique is based around something known as hyperfocal focusing, which involves focusing on a point known as the hyperfocal distance, where depth-of-field is maximised for the aperture in use. Lenses used to feature a hyperfocal distance scale on the barrel but virtually none do today. There is an equation for calculating hyperfocal distance for any lens and aperture, so in true *Blue Peter* fashion, I did just that and created a hyperfocal distance chart, which you can copy and refer to when you're on location.

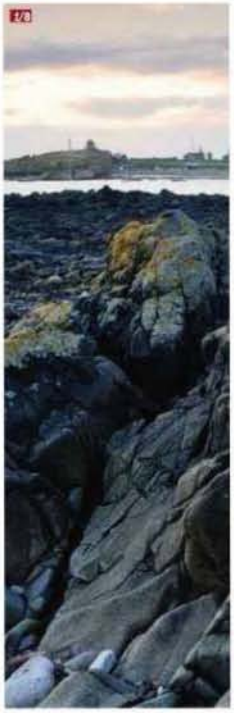
The distances in metres (m) represent the hyperfocal distances for each focal length and aperture. If you focus your lens on that distance and set the corresponding aperture, depth-of-field will extend from half the hyperfocal distance to infinity. So, if you're shooting at 24mm and f/11, focus on a point 1.5m away and depth-of-field will extend from 0.75m (half the hyperfocal distance) to infinity – which is more than enough depth-of-field in most situations.

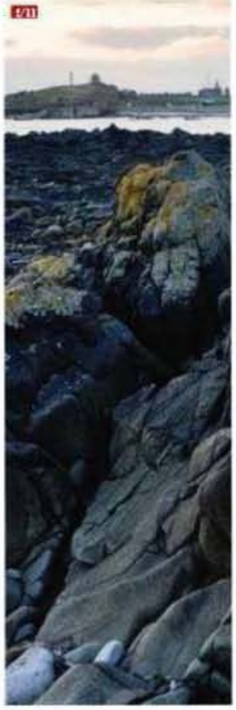
Aperture-priority and multi-zone metering

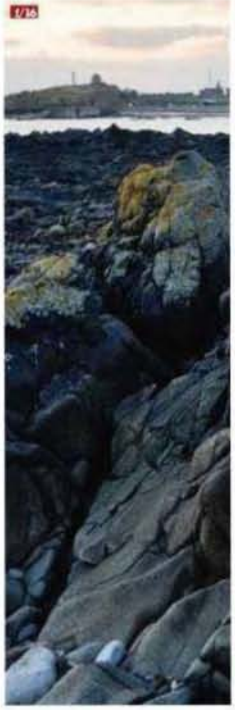
Before finally 'going digital' back in the spring of 2008, I'd spent 20 years shooting with film cameras that had no internal metering, so I used a handheld spotmeter to determine correct exposure, which then had to be manually set on the camera. Thankfully, those days are long gone. Digital SLRs have fantastic integral metering systems that are capable of producing perfectly exposed images in all but the most demanding situations, so I can't see the point in making my life more complicated than it needs to be. These days my digital SLR is set to aperture-priority mode and multi-zone metering and generally stays that way. Combined with the feedback provided by the camera's preview image and the image histogram, I've got all I need to ensure I get perfect exposures in any shooting situation. The same applies to you.

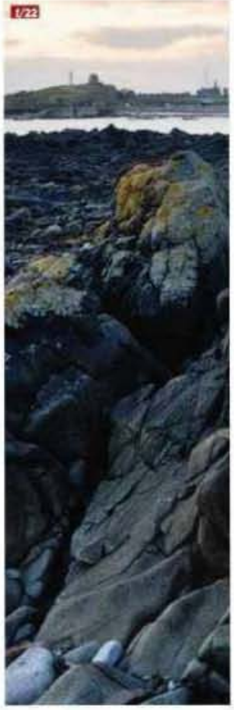




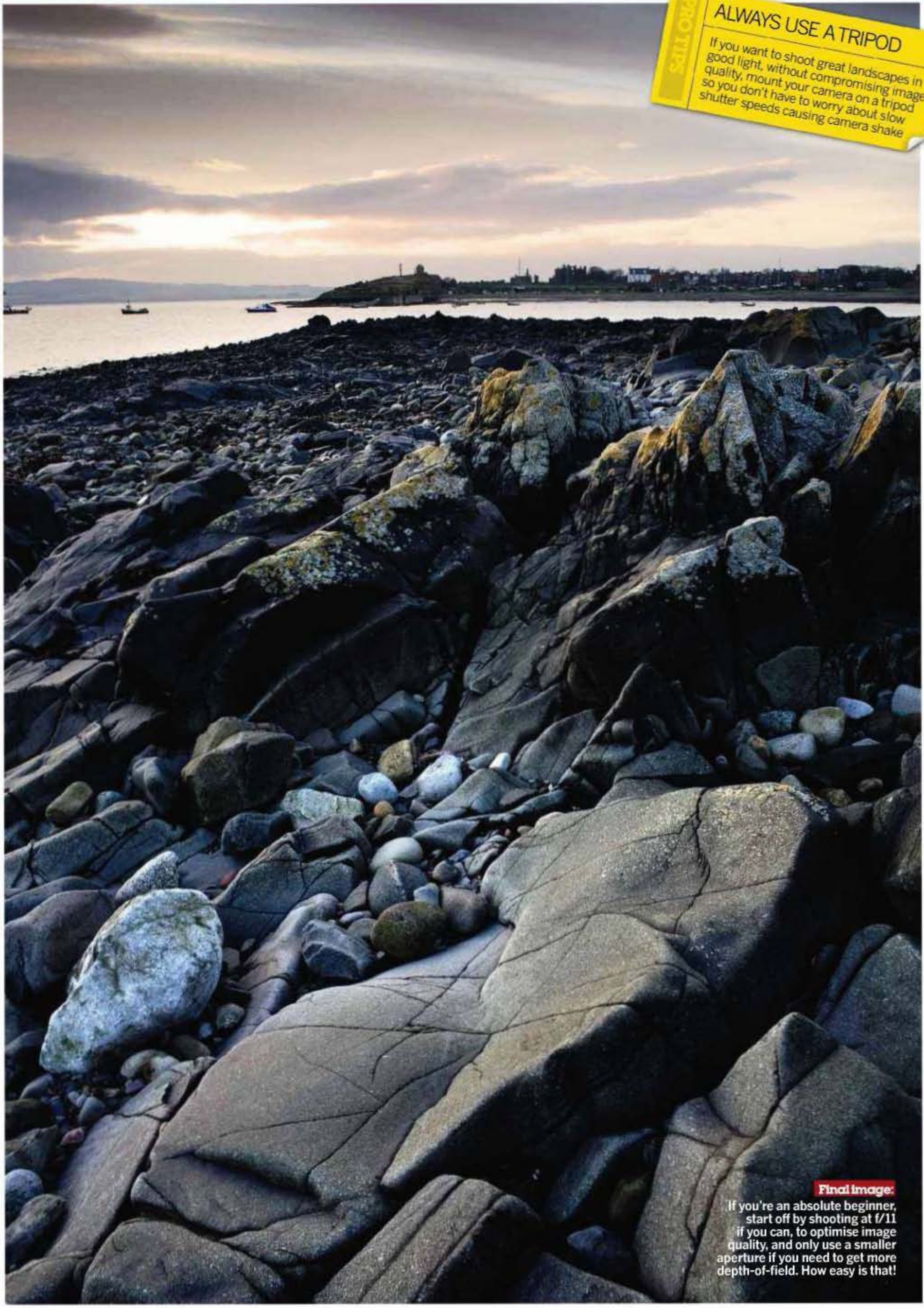








	Hyperfocal Distance Chart for focal lengths from 16mm to 200mm								
	16mm	20mm	24mm	28mm	35mm	50mm	70mm	100mm	200mm
f/8	1.0m	1.4m	2.0m	2.8m	4.2m	8.5m	17m	35m	140m
f/11	0.75m	1.0m	1.5m	2.0m	3.0m	6.3m	12.3m	25m	100m
f/16	0.5m	0.7m	1.0m	1.4m	2.1m	4.3m	8.5m	17.5m	70m
f/22	0.35m	0.5m	0.7m	1.0m	1.5m	3.1m	6.2m	12.5m	50m
f/32	0.25m	0.35m	0.5m	0.7m	1.0m	2.2m	4.2m	8.5m	35m



PRO TIPS

ALWAYS USE A TRIPOD

If you want to shoot great landscapes in good light, without compromising image quality, mount your camera on a tripod so you don't have to worry about slow shutter speeds causing camera shake

Final image: If you're an absolute beginner, start off by shooting at f/11 if you can, to optimise image quality, and only use a smaller aperture if you need to get more depth-of-field. How easy is that!

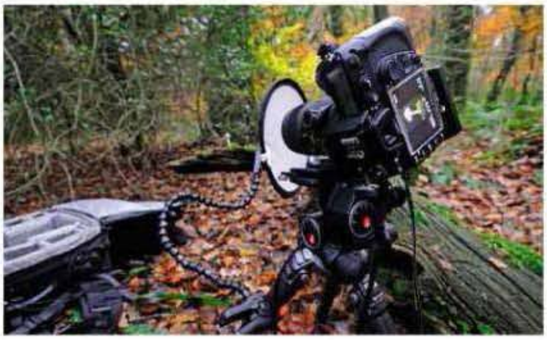
riority: Shooting nature

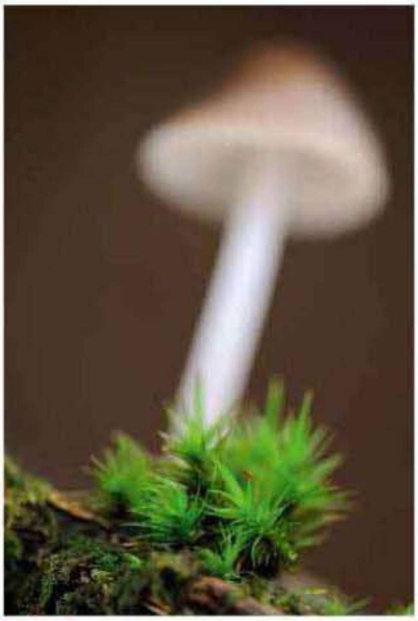
Ross Hoddinott explains how this shooting mode helps him capture great nature shots

WHEN PHOTOGRAPHING NATURE, one of the keys to success is being able to select the most appropriate exposure settings with speed and efficiency. For example, when shooting flighty birds or insects, you can't afford to waste valuable time by pressing too many buttons and twiddling dials, otherwise, your subject might move or scurry away before you've had time to release the camera's shutter. For this reason, whichever exposure mode you select is vitally important.

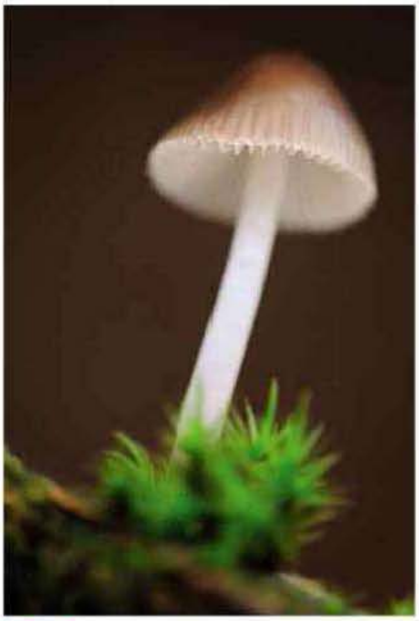
Nature photography often involves using specialist optics, such as a long telephoto or macro lens. At such high levels of magnification, depth-of-field is often limited, which arguably, makes aperture selection more important when shooting nature than with any other type of subject. When you photograph nature using one of your DSLR's fully automatic modes, you are allowing the camera to dictate the amount of depth-of-field for you. Therefore, the results can be very different to what you were aiming for. To avoid disappointment, don't rely on a program mode. Instead, take control of your settings. Aperture-priority is the best choice in the majority of shooting situations, regardless of whether you are a beginner or an experienced pro. It allows you to manually select the most appropriate f/number for the subject. For example, if you require a large depth-of-field to maximise back-to-front sharpness, which is useful when shooting flower close-ups, for instance, set a small aperture of f/16 or f/22. In contrast, if you require a shallow depth-of-field, to throw distracting foreground and background vegetation out of focus, or to draw attention to your point of focus, opt for a larger aperture, like f/4 or f/5.6. Aperture-priority allows nature photographers the level of control they require. Even in situations where a fast shutter speed is needed to freeze fast action, such as when photographing a bird in flight, aperture-priority remains a highly useful mode. This is because when you select the widest aperture, you're also setting the fastest shutter speed available.

Step 1 I noticed this tiny mushroom growing on a tree stump and thought it would make a nice close-up. I liked the moss growing nearby, so I chose an angle from which I could include it in the frame. With my DSLR on a tripod, I composed the shot and, with the help of a Plamp, positioned a small reflector nearby to illuminate its gills.

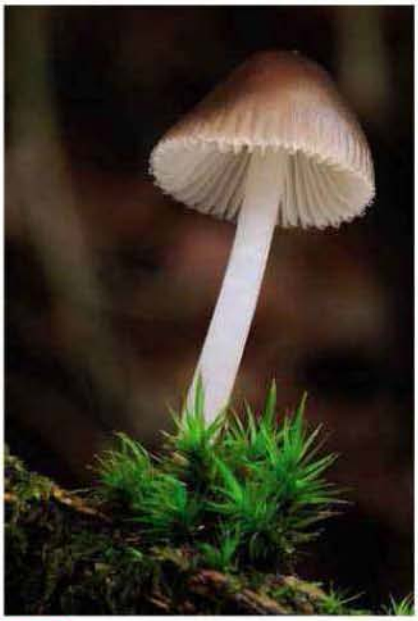




Step 2 I wanted to take a picture where the fungus and moss were both sharp. Set to full auto, my DSLR chose the maximum aperture to give the fastest available shutter speed. The resulting depth-of-field proved far too shallow. When focused on the moss, the fungus behind is badly out of focus.



Step 3 Still using the full auto mode, I adjusted the focus so that the AF locked on to the cap of the mushroom, but now the clump of moss was completely out of focus. In fact, at such a large aperture, even the stem of the fungus wasn't sharp. It proved that I needed to change the mode.

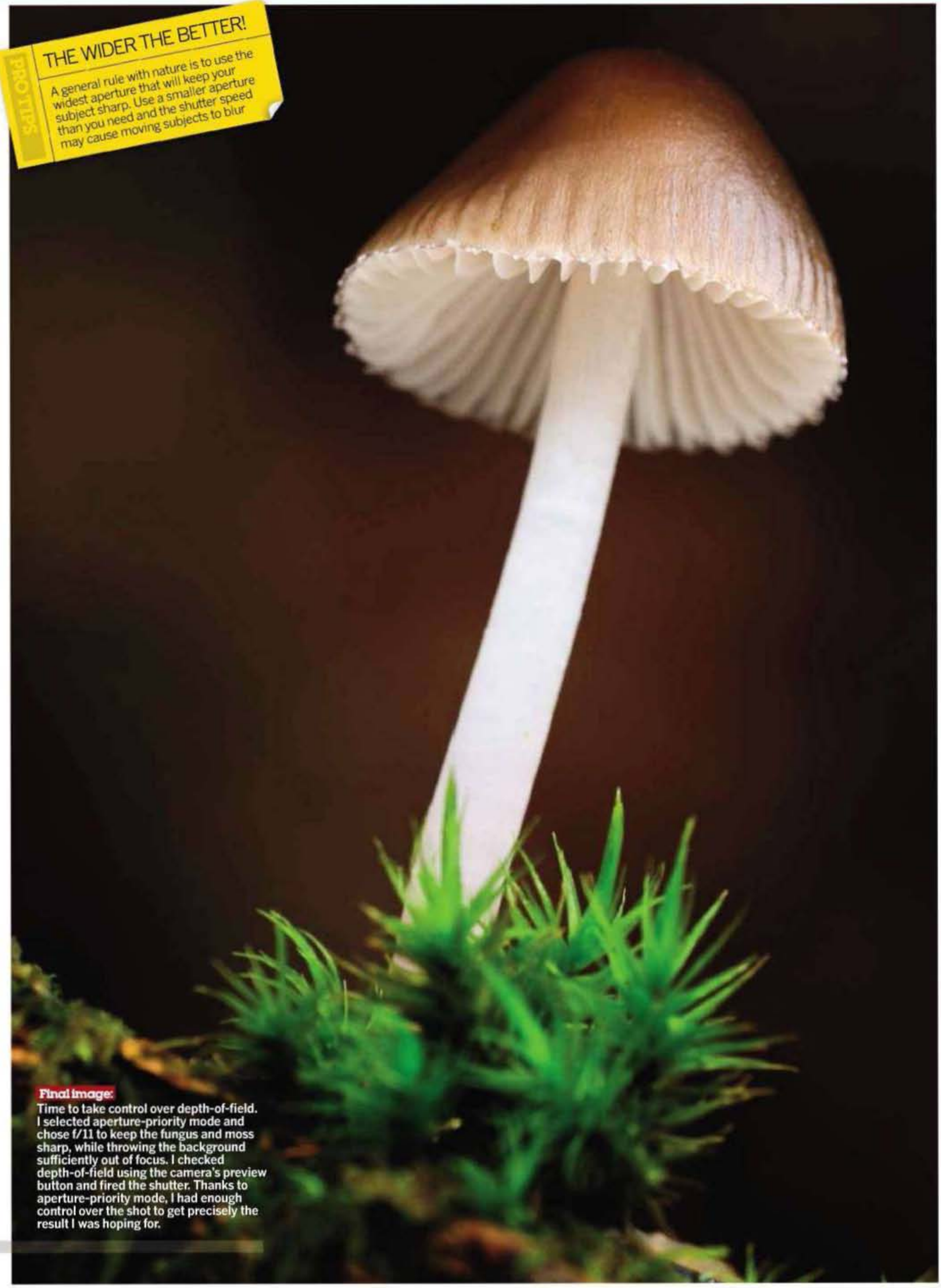


Step 4 I decided to try the close-up mode and found the camera could still only 'guess' at the effect I was trying to achieve. It opted for a small aperture to generate a large depth-of-field. While the mushroom and moss are sharp, too much of the background is showing, which is distracting.

PRO TIPS

THE WIDER THE BETTER!

A general rule with nature is to use the widest aperture that will keep your subject sharp. Use a smaller aperture than you need and the shutter speed may cause moving subjects to blur



Final image:
Time to take control over depth-of-field. I selected aperture-priority mode and chose f/11 to keep the fungus and moss sharp, while throwing the background sufficiently out of focus. I checked depth-of-field using the camera's preview button and fired the shutter. Thanks to aperture-priority mode, I had enough control over the shot to get precisely the result I was hoping for.

Further advice to controlling depth-of-field

As well as explaining what depth-of-field is, we'll show you how to control it for creative results

WHAT IS DEPTH-OF-FIELD?

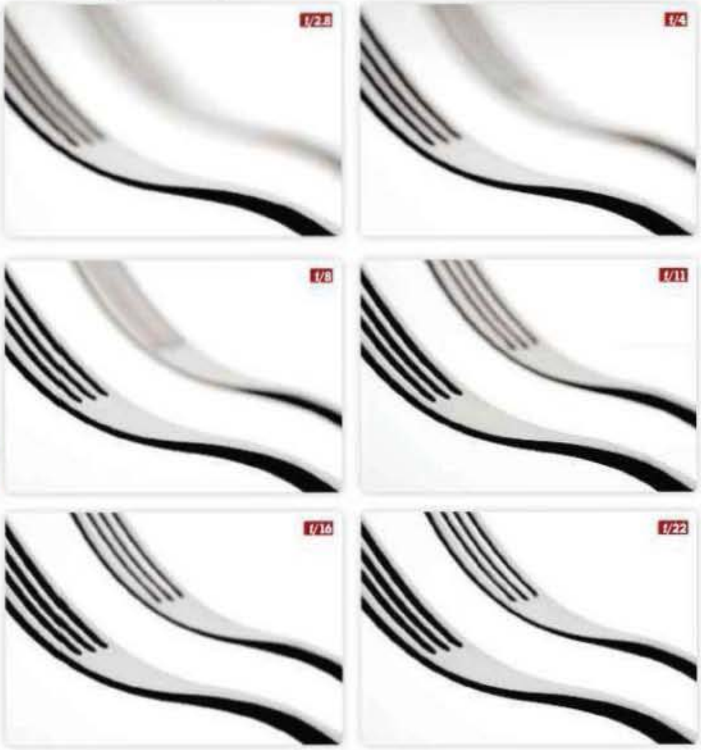
This is the term that describes the extent of the area in an image that appears sharp. This area is behind and in front of the actual point of focus and how much depth-of-field is in the image depends on certain factors (explained in the panel below). Depth-of-field can be literally millimetres or extend across an entire landscape and learning how to control and manipulate it is a vital step on your road to taking better pictures.

For general photography, depth-of-field extends one-third in front of the point of focus and two-thirds behind. It is important to remember this, especially when shooting landscapes. We'll cover this in more detail later, particularly when explaining hyperfocal focusing. With macro photography, however, the depth-of-field in front of the point of focus is equal to the amount behind.

HOW MUCH DEPTH-OF-FIELD DO I NEED?

There are no rules to how much depth-of-field you need to make a picture work, as photography is so subjective. However, photographers who specialise in shooting certain subjects tend to have distinct preferences as to the amount of depth-of-field required. For instance, landscape, commercial and scientific photographers generally tend to use broad depth-of-field, so that as much of the scene as possible appears sharp, whereas portrait photographers tend to favour a shallow depth-of-field, making the subject stands out from a nicely blurred background.

In other words, while there is no hard and fast rule that says you must aim for shallow depth-of-field when shooting subject 'X' and broad depth-of-field when shooting subject 'Y', some types of scene or subject are better suited to a shallow depth-of-field, while others look best with everything in sharp focus. It's worth aiming to conform to these tried and tested methods to start with, then once you've gained a little more experience, start experimenting. The main consideration to make is how you want your subject to relate to the rest of the scene – do you want it to stand out from the background, do you need enough depth-of-field to keep a certain area in focus, or do you want the entire scene to appear sharp?



ROSS HODDINOTT

Depth-of-field: Potential problems (and solutions!)

BROAD DEPTH-OF-FIELD You will need to set a smaller aperture such as f/22 and this requires longer shutter speeds. Consequently, camera shake and subject movement (subjects moving during the exposure) could potentially ruin a shot. So be sure to use a tripod and raise the ISO for faster shutter speeds.

SHALLOW DEPTH-OF-FIELD This necessitates very precise focusing, especially with macro shooting, where the slightest inaccuracy could cause an out of focus shot. When shooting portraits using a wide aperture, use single-point AF or focus manually, making sure that you focus on the eyes.

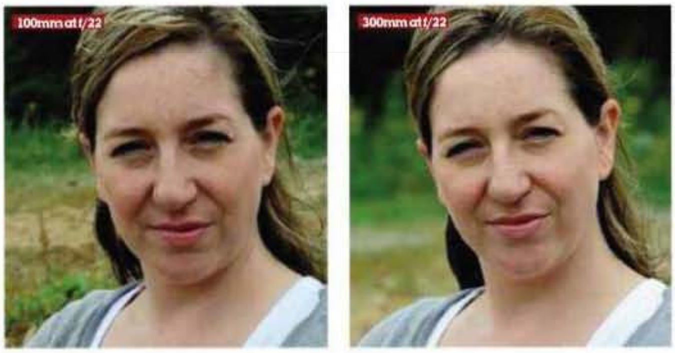
What factors affect depth-of-field?

Depth-of-field isn't controlled by a single setting or dial on your camera, but it is influenced by three main factors. Learning what these are and understanding how they work together will allow you to set up your shots to produce the effects you want

1) APERTURE SETTING The aperture you select will have a major affect on depth-of-field. Using aperture-priority, set a wide aperture (i.e. use a low f/number, like f/4) and the depth-of-field will be shallower than if you had set a smaller aperture (such as f/16). Changing apertures is the easiest way to vary the amount of depth-of-field in the scene.

2) SHOOTING DISTANCE The distance between subject and camera, or shooting distance, also has a major influence on depth-of-field. For any given aperture, the closer you are to your subject, the less the depth-of-field there will be. In other words, if you take a picture of a subject from two metres away at f/8, the image will have less depth-of-field that shooting the same subject from ten metres away with the lens still at f/8.

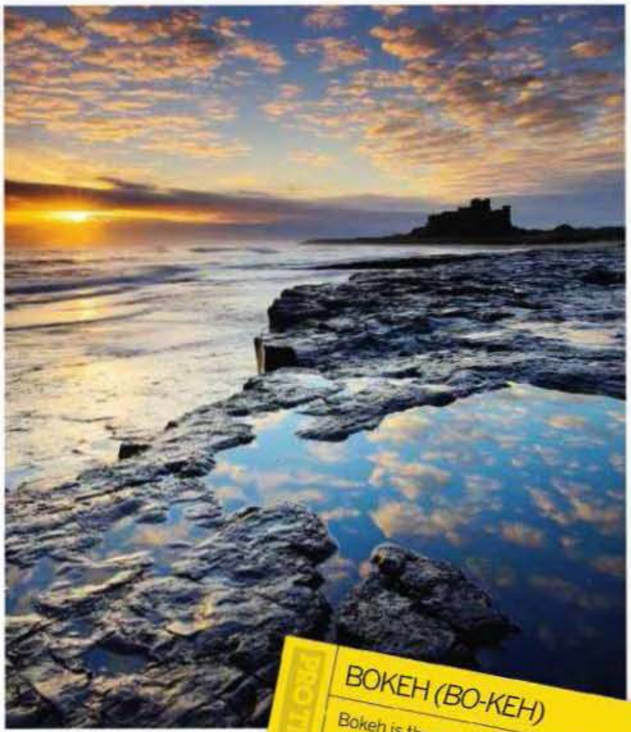
3) FOCAL LENGTH OF LENS The longer the focal length of a lens, the less depth-of-field it gives at a given aperture. For instance, if you set f/8 on your 18-55mm kit lens and take a picture of a subject at both extremes of the lens, you'll see that the shot at 18mm has more depth-of-field than at 55mm.



DANIEL LEZANO

These two shots were both taken at the same aperture. The difference in depth-of-field is because the distance between the camera and subject has changed.

According to these three factors, to get the maximum depth-of-field, you'd use the widest possible lens set to the smallest aperture and shoot from a distance; and to get the least depth-of-field, you'd use the most powerful focal length available to you, setting the lens to its widest aperture and shooting at the minimum focusing distance. Of course, going to these three extremes is rarely practical, but by following one or two of the above three factors, you will have a very good degree of control over the depth-of-field in your shots.



ADAM BURTON

Focusing a third of the way into the scene and using a small aperture ensures the image is sharp throughout the frame.

PRO TIPS

BOKEH (BO-KEH)

Bokeh is the name for the blurred areas of an image, caused by the use of a wide aperture to give a shallow depth-of-field. Some lenses have curved or extra blades to give a more pleasing bokeh

JON HICKS

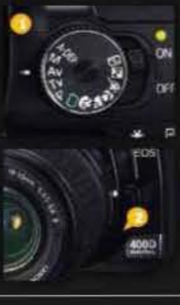
Specialist lenses

Some lenses are specifically designed to give the user more control over focus and depth-of-field. Tilt/shift (perspective control) lenses allow users to adjust the angle of the focus plane, creating very shallow (and highly controllable) depth-of-field. They are commonly used in abstract artistic and architectural photography. A cheaper alternative is a Lensbaby. Starting at around £50, the effect is reminiscent of the bellows camera, as they allow users to focus by moving the bendy lens barrel, to pick out a 'sweet spot' (area to be in focus). For details on the Lensbabies range, visit: www.intro2020.co.uk

Control depth-of-field with your DSLR

Here we show you how to access three useful functions that help you to control depth-of-field: aperture, depth-of-field preview and Live View

CANON EOS DSLRS

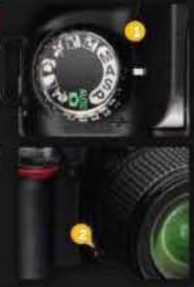


APERTURE Set the main dial to Av, then use the input dial next to the shutter button to change your aperture

DEPTH-OF-FIELD PREVIEW *(not all models)* This button is found, just below the lens removal button. Press it to close the lens iris to the working aperture

LIVE VIEW *(not all models)* Press the Set or Live View button on the camera's rear to enter Live View mode. You can then see depth-of-field changing on the LCD monitor as you change apertures

NIKON DSLRS

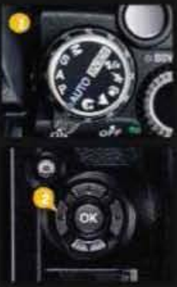


APERTURE Set the main dial to A. Then use the dial in front of the shutter button to change your aperture

DEPTH-OF-FIELD PREVIEW *(not all models)* The button sits to the bottom right of the lens mount. It is the lower of the two buttons

LIVE VIEW *(not all models)* On some models like the D300: Hold the lock-release pin on the mode dial (left of the top panel), and turn the dial around to the Lv setting
On other models like the D5000: Press the Lv button to the right of the LCD monitor

OLYMPUS E-SERIES DSLRS

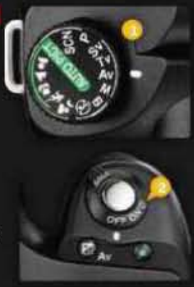


APERTURE Set the mode dial on the right of the top panel to A. Then use the scroll dial on the right to change your aperture

DEPTH-OF-FIELD PREVIEW Press the Fn (or left direction button) on the four-way navigation on the back of the camera. This button can be set, via the custom functions menu, to give a preview, either through the viewfinder, or on the LCD monitor

LIVE VIEW Press the button to the top left of the four way navigation with a symbol that looks like an LCD monitor

PENTAX K-SERIES DSLRS

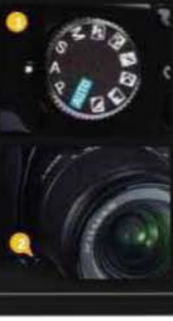


APERTURE Set the main dial to Av. Then use the thumb dial just behind the top LCD panel to change your aperture

DEPTH-OF-FIELD PREVIEW Turn the on/off switch surrounding the shutter button to the position that shows an aperture iris. This will automatically take a picture and show in on the rear screen but this will not be saved

LIVE VIEW *(not all models)* This replaces the depth-of-field preview and is accessed by turning the power switch as above

SONY ALPHA 100



APERTURE Set the shooting mode to A, using the dial on the left of the top panel. Then use the thumb dial, found just behind the top LCD panel to change your aperture

DEPTH-OF-FIELD PREVIEW *(not all models)* As you hold the camera with the lens facing away from you, the button sits, tucked away, to the bottom right of the lens mount, on the opposite side to the lens removal button

LIVE VIEW *(not all models)* On the right hand side of the top panel, move the switch from OVF (optical viewfinder) to Live View

Using depth-of-field in your portraits

By altering your shooting distance, being creative with how you focus and thinking about your choice of aperture, you can learn to really make your portraits stand out

THERE ARE FEW, if any, more rewarding feelings in photography than capturing a portrait that not only pleases you, but has the subject over the moon with how they look in the shot. Most people have had their picture taken, but few get the chance to have their portrait shot. There is a subtle difference to the two – one is a quick snap, with little attention given to the technical aspects of the image with the exception of some basic composition, the other has more consideration given to how the final result should look.

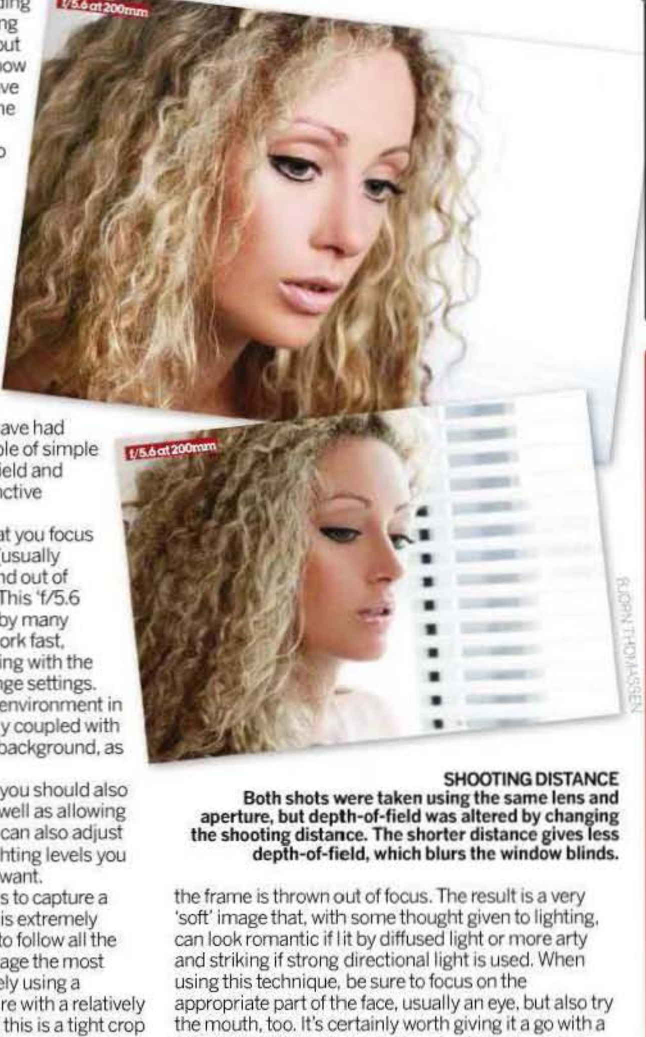
It's often said that a good portrait captures a little bit of the personality of a subject and that's true. But what it also does is record the sitter in a way that's different to other pictures that they have had taken of themselves. By using a couple of simple techniques based around depth-of-field and focusing, you can deliver really distinctive portraits, as we'll discover shortly.

The general rule for portraits is that you focus on the eyes and set a wide aperture (usually around f/5.6) to throw the background out of focus, while keeping the face sharp. This 'f/5.6 rule' is one that is used successfully by many lifestyle photographers who like to work fast, preferring to concentrate on interacting with the subject and minimise having to change settings.

If you want to include more of the environment in the scene, a smaller aperture (usually coupled with a wider lens) is required to keep the background, as well as the subject, in focus.

While ambient light is often ideal, you should also consider using a studio-flash kit. As well as allowing you to control lighting direction, you can also adjust its intensity to provide the correct lighting levels you need to use whichever aperture you want.

A technique that works really well is to capture a portrait where the zone of sharpness is extremely shallow. The easiest way to do this is to follow all the 'tricks' that are required to give an image the most shallow depth-of-field possible, namely using a telezoom set to the maximum aperture with a relatively short shooting distance. The result of this is a tight crop of the face where, bar a small focused area, much of the frame is thrown out of focus. The result is a very 'soft' image that, with some thought given to lighting, can look romantic if lit by diffused light or more arty and striking if strong directional light is used. When using this technique, be sure to focus on the appropriate part of the face, usually an eye, but also try the mouth, too. It's certainly worth giving it a go with a friend or family member and seeing how you get on.



BJORN THOMASSEN

SHOOTING DISTANCE
Both shots were taken using the same lens and aperture, but depth-of-field was altered by changing the shooting distance. The shorter distance gives less depth-of-field, which blurs the window blinds.

Lens choice

You can use most lenses for portraits, from the tele-end of an 18-55mm kit lens to telezooms like a 55-200mm. Using a longer focal length provides a more flattering perspective than using a wide-angle and also produces a shallower depth-of-field, making it ideal for eye-grabbing portraits.

Portraits checklist

1) SHOOT HANDHELD It will mean you can move around and frame quickly, or better still, use a monopod. Using the maximum aperture provides the fastest possible shutter speed, but if it's still low, use the image stabiliser if your DSLR or lens has it and/or raise the ISO rating.

2) CHECK YOUR DISTANCE At very wide apertures, you have to be careful not to move forward or backward after focusing as this can lead to unsharp results.

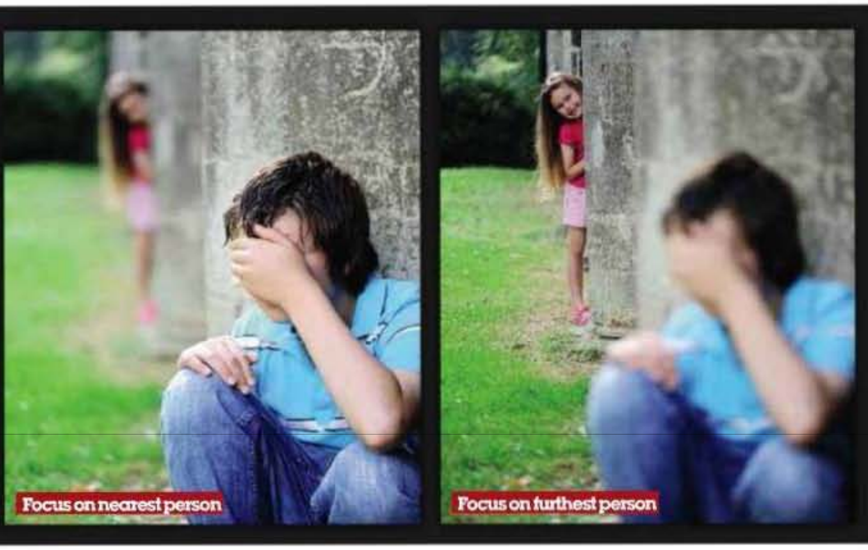
3) EYE CONTACT Ensure that the subject's eyes are clean and that make-up has been carefully applied. Try some shots with the subject looking into the lens and others with them looking away.

4) USE THE SHADOWS Pay attention to lighting and how shadows fall across the face – use them to add mood to the image.

5) CONSIDER MONO It's always worth converting portraits to black & white and seeing how they compare to colour images.

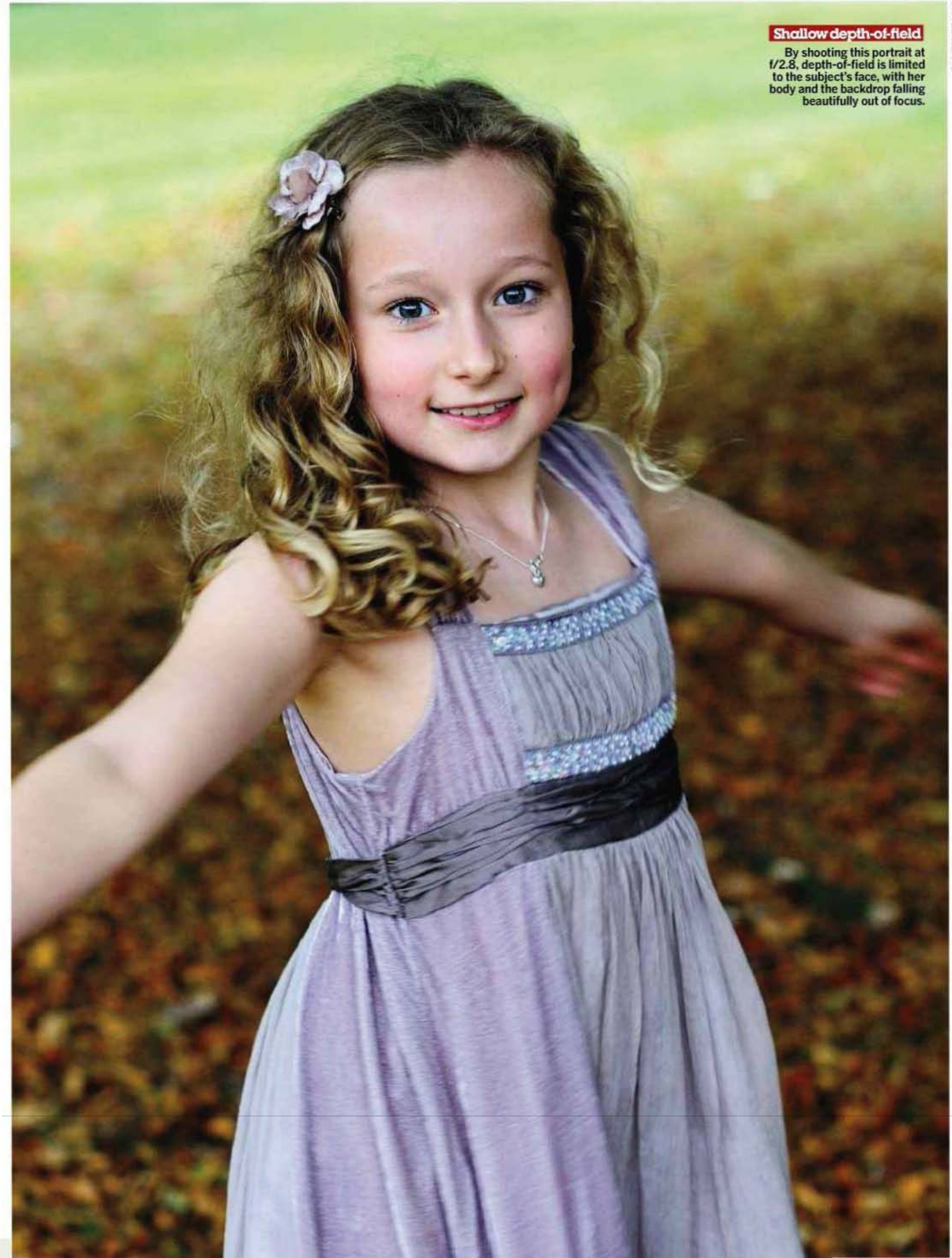
Differential focusing

Another popular technique when using shallow depth-of-field is differential focusing. It's simple to master, but the secret is to know when to use it. The principle of the technique is to use a very wide aperture to emphasise a particular subject within the frame, by having it pin-sharp while the rest of the scene is thrown out of focus. It's particularly effective when there is a lot of depth in the scene and an aperture is used that blurs unwanted elements in the frame, while remaining sharp enough to be recognisable. Use it to pick out a particular person in a crowd or to produce a creative portrait with a story to tell.


Focus on nearest person
Focus on furthest person

DANIEL LEZANO

HIDE & SEEK: These images illustrate how differential focus can have a major effect on the result. The same exposure was used in both shots but the focus was changed to reveal different elements in the scene.



Shallow depth-of-field

By shooting this portrait at f/2.8, depth-of-field is limited to the subject's face, with her body and the backdrop falling beautifully out of focus.

DANIEL LEZANO

Control depth-of-field in close-ups

By reducing the distance between subject and camera, you increase the impact caused by depth-of-field. Here, we give you a few key tips to better control

DEPTH-OF-FIELD is one of the most important creative elements of close-up photography. The lack of distance between the subject and the camera's sensor means the area that appears sharp will be very limited. Depending on how you set your shot up, it could be just mere millimetres, even when using a small aperture! For this reason, macro photography requires very accurate focusing, even being fractionally off with your focus could result in an out-of-focus result. A good knowledge of apertures is the single most important factor, as the f/number you choose will have the greatest influence on the amount of depth-of-field in your image. But macro photography brings with it its own unique challenges and rules.

One notable difference between macro and other types of photography is how depth-of-field is evenly distributed in front of and behind the point of focus. In other words, the amount of the scene that appears to be sharp will be equal both in front of and point of focus. In other areas of photography, the distribution is 1/3 in front and 2/3 behind the point of focus.

It is important to have an idea of how much depth-of-field best suits your subject. For arty, abstract close-ups, or shots in which you only want one specific point to appear in focus, such as on a flower, shallow depth-of-field is best, keeping only a small part of a petal or stamen in focus. For this, you would use the widest aperture available on your lens. If, however, you were shooting an insect, such as a dragonfly, and want to keep the whole subject sharp, you would use a small aperture, such as f/22.

The aperture is not the only way that you can influence depth-of-field: the position of your DSLR's sensor is also crucial. The focal plane runs parallel to the sensor, so if you want to keep your subject sharp, your subject must be square on to the camera. By rotating or tilting the camera (and sensor plane) you can reduce depth-of-field further, as the subject will move out of the focused area quicker. (To line up, use the back of your camera or the ⊖ symbol on the top-plate as a guide, as it is parallel with the sensor!) Finally, the other way to have a major affect on depth-of-field is by using selective focus, as described below.

ABOVE: These shots show how the depth-of-field can be very limited when shooting at close range with a macro lens.

Lens choice

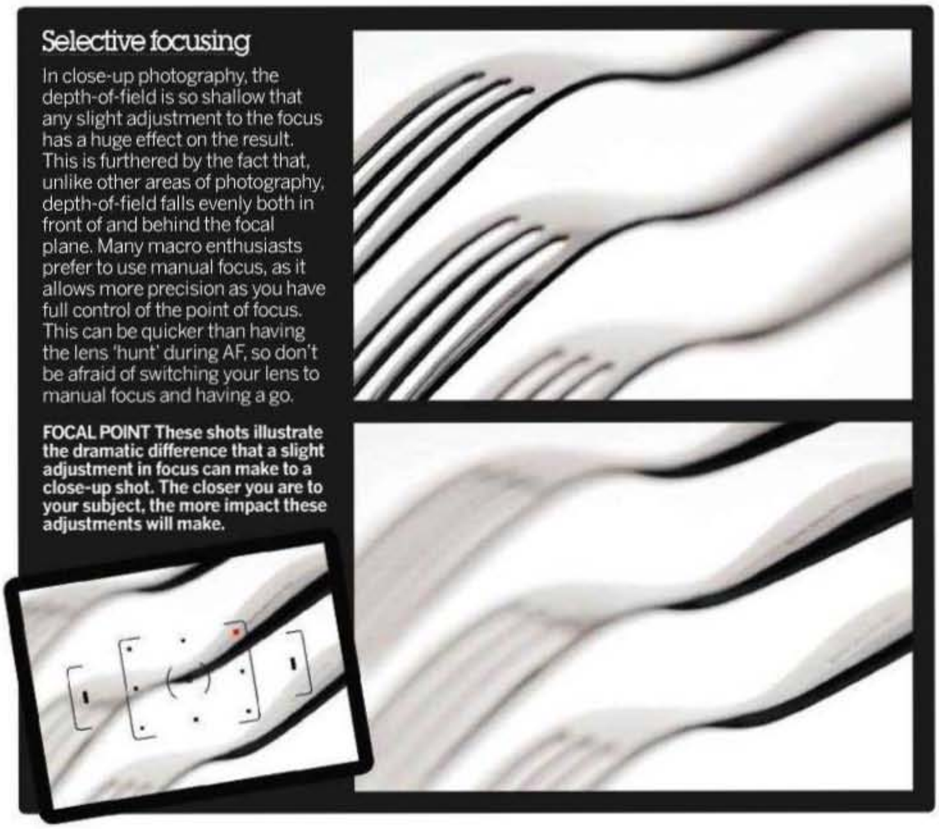
Macro lenses are ideal for close-up work, as they allow you to get really close to your subject, giving you a huge amount of creative control over depth-of-field. If you don't want to splash out on a macro lens, you can pick up extention tubes or close-up filters to convert your standard zoom for close-up photography.

Using Live View

Canon's Live View system allows you to adjust the aperture setting and observe in 'real time' the changes that this has on depth-of-field, allowing you to choose your favourite setting!

Selective focusing

In close-up photography, the depth-of-field is so shallow that any slight adjustment to the focus has a huge effect on the result. This is furthered by the fact that, unlike other areas of photography, depth-of-field falls evenly both in front of and behind the focal plane. Many macro enthusiasts prefer to use manual focus, as it allows more precision as you have full control of the point of focus. This can be quicker than having the lens 'hunt' during AF, so don't be afraid of switching your lens to manual focus and having a go.



FOCAL POINT These shots illustrate the dramatic difference that a slight adjustment in focus can make to a close-up shot. The closer you are to your subject, the more impact these adjustments will make.

Close-up checklist

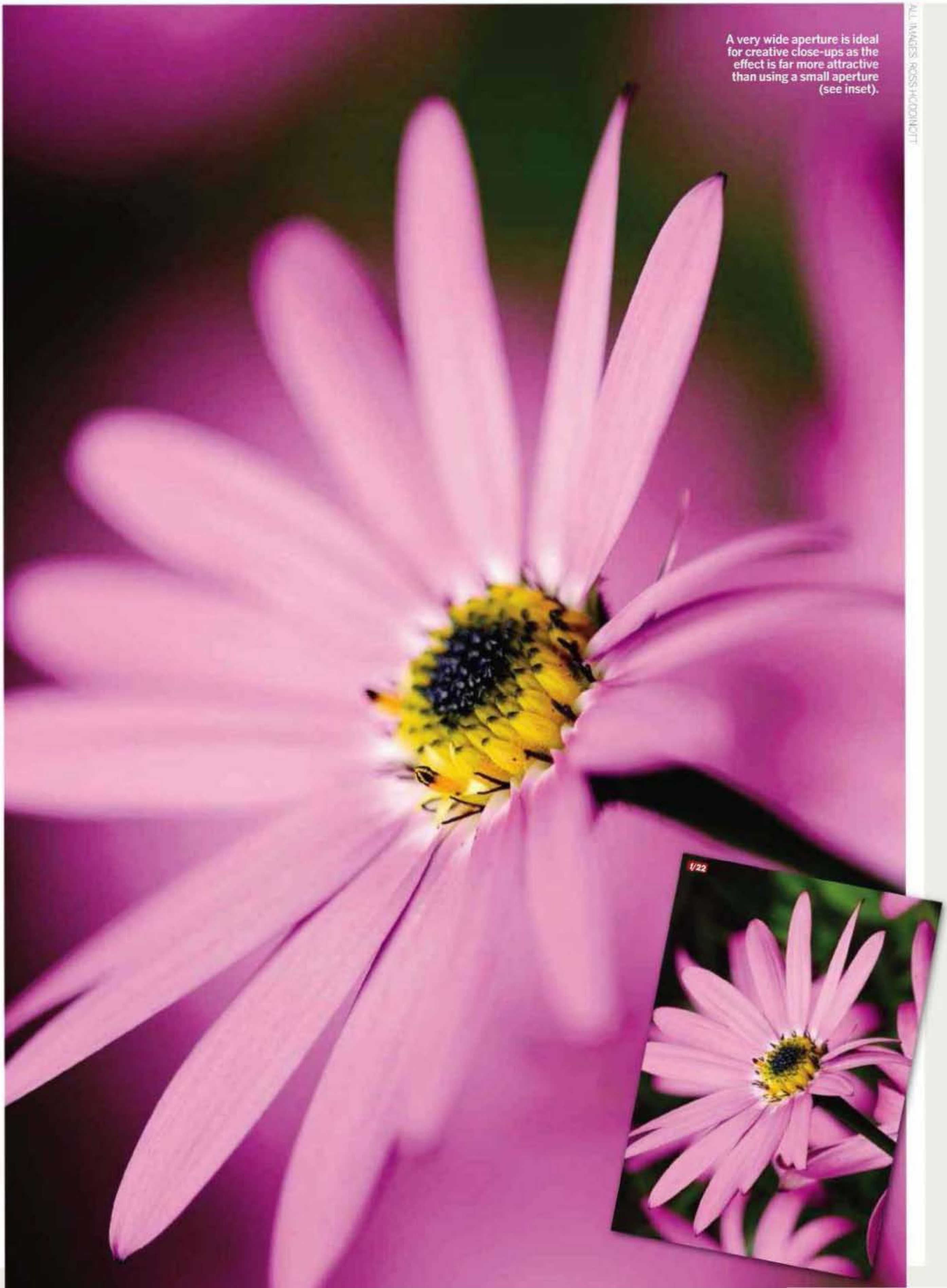
1) USE A STURDY TRIPOD To eliminate camera shake when using small apertures. It will also aid focus as when handholding the camera, you'll find any slight body movements will throw your subject out of focus.

2) FOCUS ACCURATELY! It is essential that you get the focus right. When depth-of-field is this limited, anything that is not on the point of focus my appear unsharp. Manual focus is quite often the quickest and best option to use.

3) USE MIRROR LOCK-UP To prevent blur caused by the mirror moving as the shutter is triggered, try locking the mirror and using the camera's self timer. A remote release is a useful accessory too.

4) CHECK YOUR FOCUS The depth-of-field preview button is useful, but with short exposures, it can often be easier to simply take a test shot and review it on your LCD. And let's not forget the benefit of using Live View, too.

5) CHANGE YOUR DISTANCE The depth-of-field depends greatly on your distance from the subject. Try shooting from further away to increase depth-of-field and closer up to reduce it.



A very wide aperture is ideal for creative close-ups as the effect is far more attractive than using a small aperture (see inset).

ALL IMAGES: ROSS HODDINOTT

The basic principles of shutter speeds

So, what are shutter speeds? How are they controlled and what do they do? Read on for the answers to these and other shutter speed-related queries

WHAT ARE SHUTTER SPEEDS?

The shutter speed is the precisely-calibrated length of time that a camera's shutter remains open to enable the correct amount of light to pass through the lens to expose the sensor. The majority of images taken require speeds of just a fraction of a second, although shutter times can potentially run to seconds, minutes or, in the case of some specialised forms of photography, even hours. The shutter speed dictates how motion is recorded. A fast shutter speed will freeze subject movement – perfectly suspending action and recording fine detail. Setting a slow shutter will blur movement – helping to create a visual feeling of motion and energy.

Digital SLRs have a wide range of shutter speeds, typically from 30 seconds to speeds of, or exceeding, a staggeringly fast 1/4000sec. Most digital SLRs also have a 'Bulb' setting, which allows the shutter to be opened for as long a you depress the shutter release button.

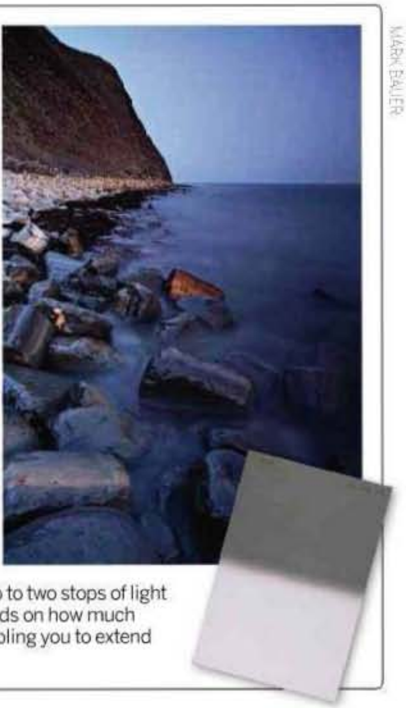
HOW ARE THEY CONTROLLED AND WHAT DO THEY DO?

Combined with any given lens aperture, the shutter speed is designed to allow sufficient light to reach the image sensor to produce a correctly exposed image. If the shutter speed is too fast, not enough light will reach the sensor, so the resulting shot will be too dark, i.e. underexposed. In contrast, if the shutter speed is too slow, too much light will strike the sensor, resulting in an image that is too bright, i.e. overexposed.

If you are using your digital SLR in one of its automated exposure modes, the shutter speed – along with the corresponding aperture – will be set automatically. While this is the easiest option, it doesn't give you any control over the way your subject is recorded. After all, while your camera may be highly sophisticated, it is not able to predict the effect you want to achieve. Therefore, if you haven't already, it is time to grasp control of your camera by selecting shutter-priority (S or Tv) mode.

Shutter-priority is a semi-automatic mode that allows you to manually select the shutter speed, while the camera sets a corresponding f/stop to achieve the a correct exposure. Therefore, it really isn't as complex or daunting as you might imagine and there are no tricky calculations to make. Instead, this mode allows you to concentrate on selecting a shutter speed that will suit the subject you are about to photograph. This choice will greatly dictate the look of your final shot, influencing the appearance of the subject's motion… as we will discover over the following pages.

Choosing filters



MARK BAUER

If shooting long exposures in low light, there will often be quite a difference in brightness between the foreground, which after the sun sets, will have no direct light on it, and the sky, which will be lit from below. A Graduated Neutral Density filter will ensure that this contrast stays within the dynamic range of your camera's sensor. If shooting along the coast, with cliffs to one side, angle the grad so that it doesn't cut into the cliffs too much. Another useful filter is the polariser. Not only will it reduce the glare off any wet foreground rocks, but it will cut out up to two stops of light (exactly how much depends on how much polarisation you use) enabling you to extend exposure times.

Setting shutter speeds on your DSLR

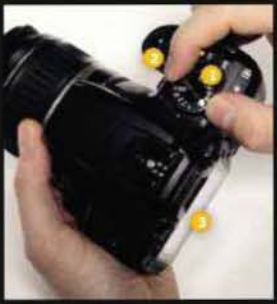
Controlling shutter speeds on your digital SLR couldn't be easier; it is simply a matter of selecting shutter-priority mode and rotating a dial!

CANON EOS DSLRS

(1) Set the main control dial on the right-hand side of the top-plate to Tv to select shutter-priority mode

(2) Turning the input dial just behind the shutter button allows you to select the shutter speed value

(3) You can see the shutter speed setting by looking at the information display on the rear LCD monitor or information panel in the viewfinder display

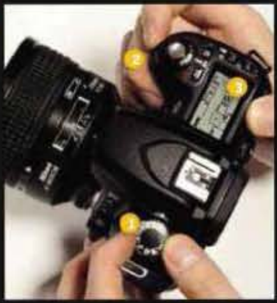


NIKON DSLRS

(1) Set the main control dial on the left-hand side of the top-plate to S to select shutter-priority mode

(2) Turning the input dial on the front of the handgrip allows you to select the shutter speed value

(3) You can see the shutter speed setting by looking at the top-plate LCD panel or the information panel in the viewfinder display

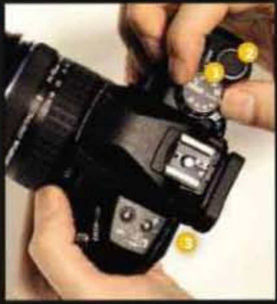


OLYMPUS E-SERIES DSLRS

(1) Set the main control dial on the right-hand side of the top-plate to S to select shutter-priority mode

(2) Turning the input wheel on the top right of the camera allows you to select the shutter speed value

(3) You can see the shutter speed setting by looking at the rear LCD monitor or the information panel in the viewfinder display

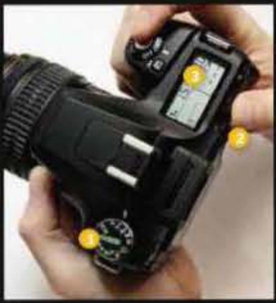


PENTAX K-SERIES DSLRS

(1) Set the main control dial on the left-hand side of the top-plate to Tv to select shutter-priority mode

(2) Turning the input dial on the rear of the camera with your right thumb allows you to select the shutter speed

(3) You can see the shutter speed setting by looking at the top-plate LCD panel or the information panel in the viewfinder display

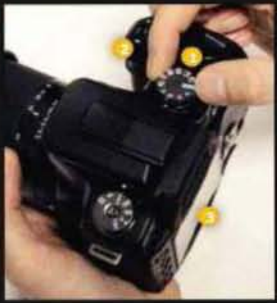


SONY ALPHA DSLRS

(1) Set the main control dial on the right-hand side of the top-plate to S to select shutter-priority mode

(2) Turning the input dial on the top of the handgrip just in front of the shutter button allows you to select the shutter speed value

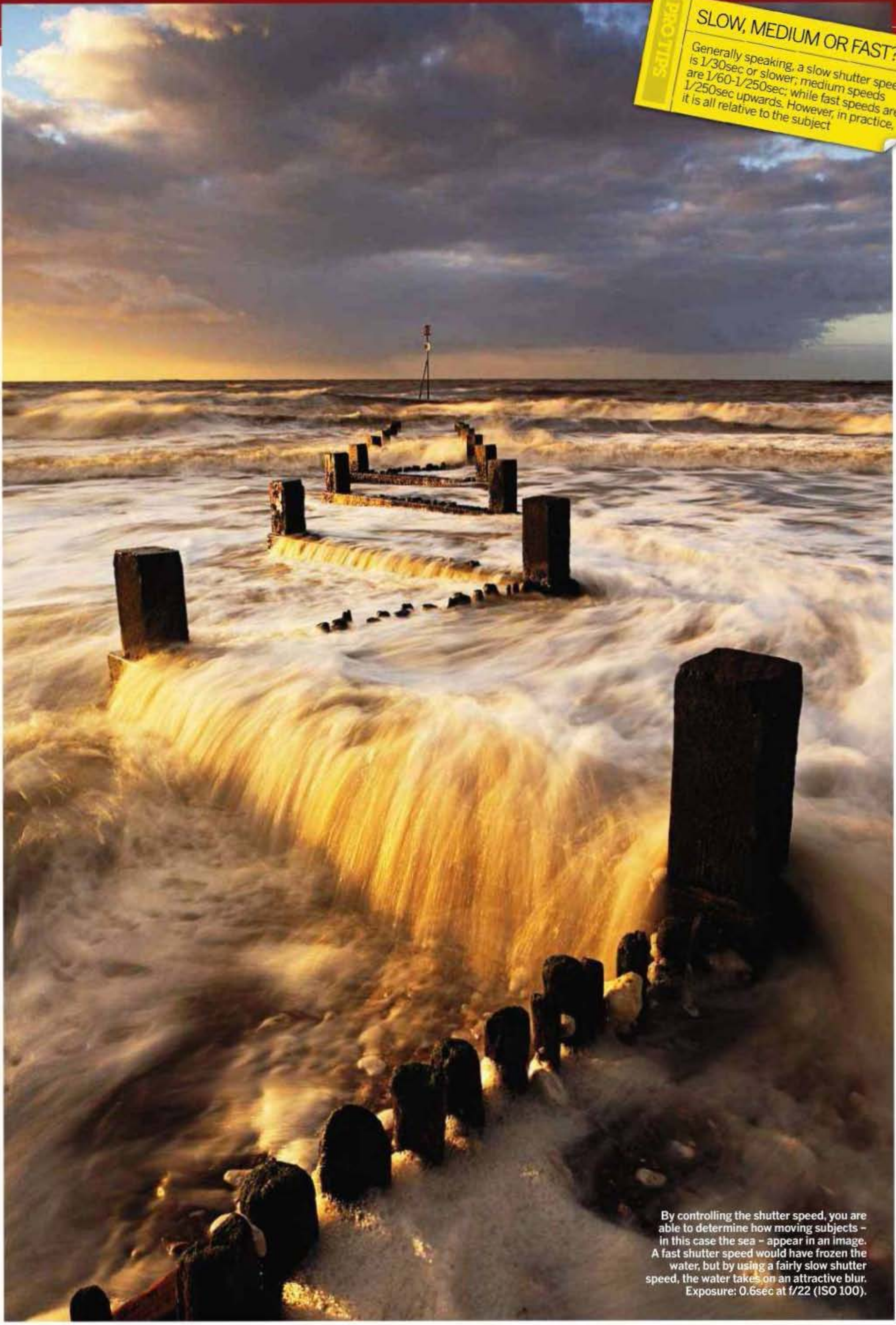
(3) You can see the shutter speed by looking at the rear LCD monitor or information panel in the viewfinder display



PRO TIPS

SLOW, MEDIUM OR FAST?

Generally speaking, a slow shutter speed is 1/30sec or slower; medium speeds are 1/60-1/250sec; while fast speeds are 1/250sec upwards. However, in practice, it is all relative to the subject



By controlling the shutter speed, you are able to determine how moving subjects – in this case the sea – appear in an image. A fast shutter speed would have frozen the water, but by using a fairly slow shutter speed, the water takes on an attractive blur. Exposure: 0.6sec at f/22 (ISO 100).

CHRIS HERRING

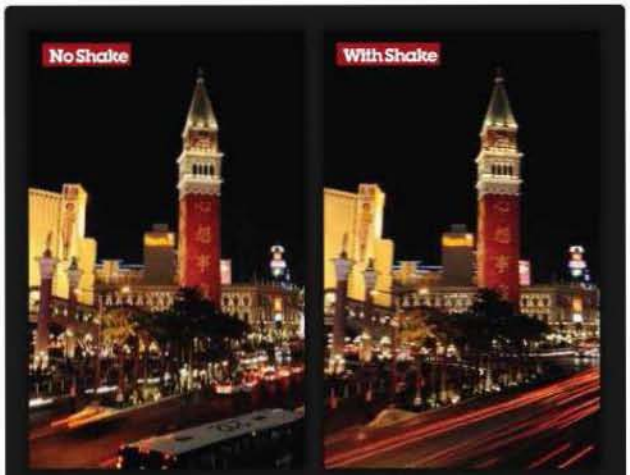
Shutter speeds & exposure

You've made a positive step by selecting your camera's shutter-priority exposure mode; but before you can begin setting shutter speeds with confidence, you must understand the affect it has on your exposure

EXPOSURE IS INFLUENCED by three variables; shutter speed, lens aperture and ISO sensitivity. The camera will not alter the ISO sensitivity in shutter-priority mode (S or Tv) – only you can do this, by adjusting it manually. However, the f/stop will alter, depending on the shutter speed you select. This is because shutter speeds and apertures have a reciprocal relationship – if you increase one, there must be an equal and opposite adjustment in the other to maintain the correct exposure.

To help you to understand this relationship, grab your camera, switch it to shutter-priority mode, and adjust the shutter speed by rotating the input or command dial. You will notice how the f/number changes in response to the shutter speed you select. This simple exercise will help you to appreciate the way exposure works. For example, if you set a fast shutter speed, the aperture will be larger (a low f/number, such as f/4 will be selected) to allow more light to pass through; if you select a slow shutter speed, the aperture will be smaller, so you will have a higher f/stop, such as f/16, which will restrict the light reaching the sensor.

The maximum and minimum shutter speeds you can select will be strongly dependent on ambient light. Too much or too little can limit your options, meaning that you will have to adapt or compromise. This guide will serve you as a starting block, and give you a basic understanding of shutter speeds, how the exposure of your shots will be affected by them and how to overcome any difficulties you might encounter. It is not as daunting as it sounds, so be brave and give it a go! Here we've included some advice about coping when faced with extreme lighting conditions.



Avoiding camera shake

There are several ways to prevent camera shake from ruining your shots when a tripod isn't available. Using a fast shutter speed is the most traditional – make sure that the shutter speed matches the focal length of your lens, so if you are using a 300mm lens, make sure the shutter speed is at least 1/300sec, and so on (image stabilisation also helps with this!). Increasing the ISO rating and using wide apertures help with setting faster shutter speeds.

ISTOCK PHOTOS

Not enough light

Whether you are shooting indoors or out, low light levels can present problems for photographers. Shutter speeds grow longer in response to the dull conditions and, if you are shooting handheld, the risk of camera shake is greatly increased – particularly at speeds of 1/60sec and longer. So what is the solution?

You might presume that the best thing to do is select the fastest shutter speed that the light levels will allow; but this is not always the best option. By doing so, you are also effectively setting the largest aperture (smallest f/number) – remember they have a reciprocal relationship. This will result in a very shallow depth-of-field that may not be sufficient to record enough of your subject in acceptable focus. Therefore, it is often better to use a tripod to support your set-up instead, as this will allow you to employ longer shutter speeds to create a wider depth-of-field, while also eliminating the risk of shake.

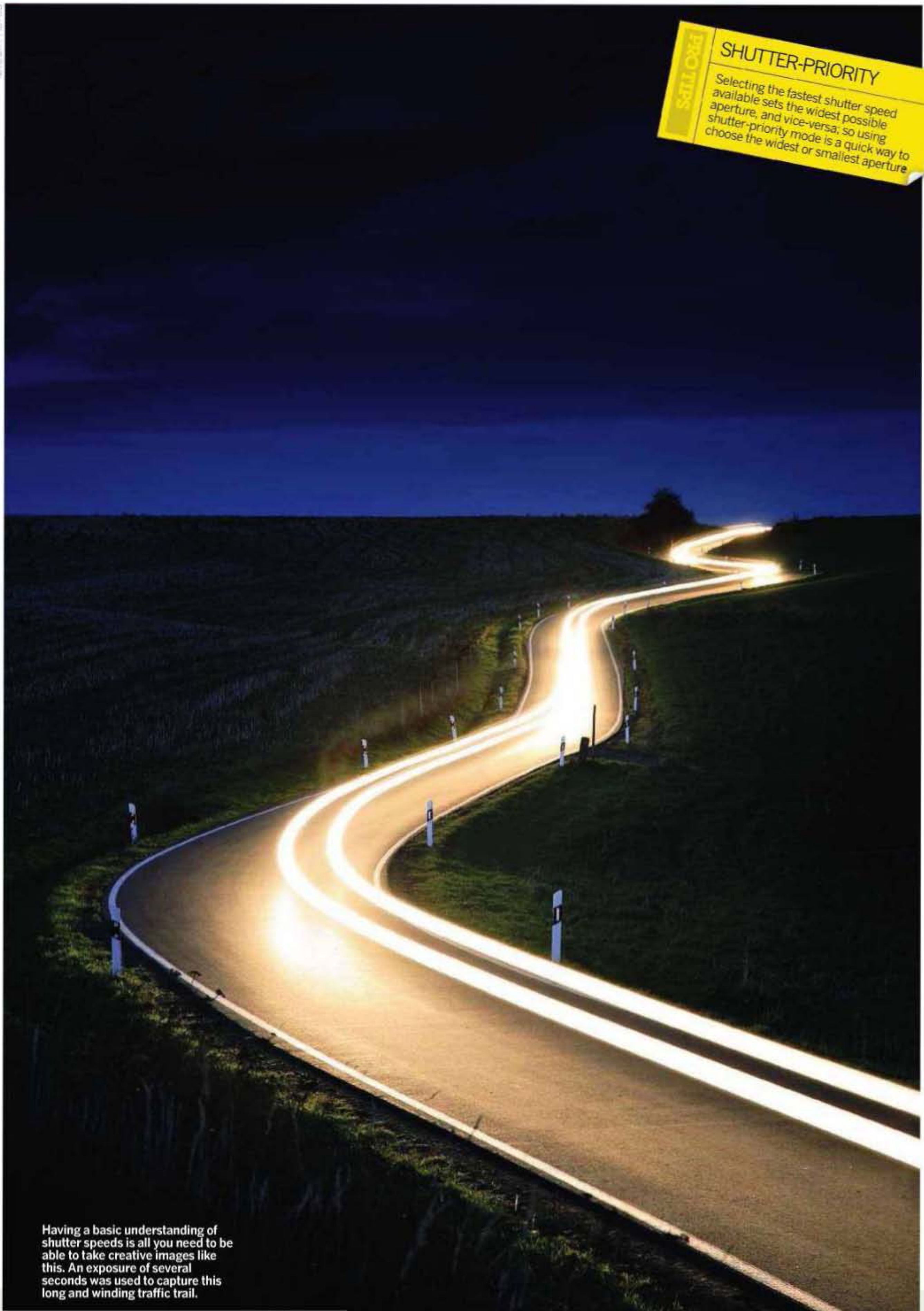
However, if the subject isn't static and you wish to freeze its movement – or you have to shoot handheld – you will indeed need to prioritise a fast shutter. Therefore, opt for the fastest shutter speed available to you. If this still isn't quick enough to freeze movement, select a higher ISO sensitivity of 400 or above. Doing so will generate a faster shutter speed – although noise will increase as a result. Alternatively, consider using a burst of flash to provide more light.

ISTOCK PHOTOS

Too much light

In bright light, shutter times will be fast. Many entry-level digital SLRs have a maximum shutter speed of 1/4000sec; while more advanced models are upto 1/8000sec. To be honest, it is very unlikely you will ever need to use this speed and – unless you are using your camera at a high ISO rating of 800 or above on a very sunny day – it is rare to reach these speeds in everyday photography.

In bright conditions, photographers have more options. You can select a fast shutter speed while also enjoying a wide depth-of-field, due to the corresponding aperture being smaller than if there were less light. This is extremely useful when you wish to shoot rapid action, such as in sports and wildlife, which require a fast shutter to freeze movement. However, believe it or not, it is possible to have too much light. For example, when you wish to blur a subject's movement to create a sense of motion. This isn't possible using a fast shutter speed, so you will want to reduce shutter time. In shutter-priority mode, it is quick and easy to select the slowest shutter speed available by rotating the input dial. Also, ensure the lowest ISO rating is selected – typically 100 or 200. If shutter time is still too fast to create the effect you desire, you will need to reduce the light entering the lens. The best way to do this is by using something called a Neutral Density filter, which restricts the light passing through it.



ISTOCK PHOTOS

PRO TIPS

SHUTTER-PRIORITY

Selecting the fastest shutter speed available sets the widest possible aperture, and vice-versa; so using shutter-priority mode is a quick way to choose the widest or smallest aperture.

Having a basic understanding of shutter speeds is all you need to be able to take creative images like this. An exposure of several seconds was used to capture this long and winding traffic trail.

Using fast shutter speeds

As we have already seen, shutter times play a crucial role in the making of an image. Varying the shutter speed/aperture equation can greatly affect the way the subject is recorded – particularly moving subjects

WHEN SHOOTING POPULAR subjects such as sports, action, birds and mammals, photographers will often want to suspend movement mid-action, freezing it in sharp detail. To capture this sort of image successfully, your exposure will require a fast shutter speed.

You'll find that the speed required will be relative to the subject's movement (speed and direction will each have an affect) and also the focal length of the lens being used. For example, a man running parallel with the viewfinder will be moving more slowly across the frame than, say, a travelling car. Therefore, the slowest shutter speed needed to 'freeze' the runner will be slower than that for the vehicle, but faster than if the man were simply walking. If the runner is jogging directly toward you they will be crossing less of the sensor plane and therefore will require a slower minimum shutter speed to be rendered sharper than if they were running parallel across the frame. In other words, you need a faster shutter speed if the subject moves across the frame than if moving towards/away from you.

Using a longer focal length or a telephoto lens means that the subject fills more of the image space, and therefore moves faster within the frame than it would if you were using a shorter focal length or wide-angle lens.

The minimum shutter speed required to freeze subject movement will be greatly dictated by the factors mentioned above, so there is no hard and fast rule regarding the speed you must select. A degree of trial and error is often required to achieve the correct speed. However, in practice, a good starting point is to set a shutter of 1/500-1/1000sec. A speed in this region normally proves sufficient to suspend the motion of most moving subjects.

ISTOCKPHOTO

To capture a moment, such as those above and right, it is important to set a fast shutter speed to keep the subjects sharp. Using continuous shooting mode will also increase your chances of getting the best possible result.

Shutter speeds for moving subjects

This quick-reference table provides a starting point for which shutter speeds to try when shooting a number of different types of moving subjects. Try these to begin with, then experiment with other speeds, and study how different the subject appears when it has been captured with slower or faster settings.

Subject	Recommended shutter speeds	
	Subject moving towards camera	Subject moving across frame
Jogger	1/125-1/200sec	1/250-1/500sec
Sprinter	**1/250-1/500sec**	**1/250-1/500sec**
Car (30mph)	1/250-1/500sec	1/250-1/500sec
Car (70mph)	**1/250-1/500sec**	**1/500-1/1000sec**
Cyclist	1/200-1/250sec	1/250-1/500sec
Galloping horse	**1/250-1/500sec**	**1/500-1/1000sec**
Fast motorsports	1/500-1/750sec	1/1000-1/2000sec

How to go faster!

Here are two easy ways to set up your DSLR to give you the fast shutter speeds that freeze moving subjects.

ISO speed
100
200
400
800
1600

✓ **HIGH ISO** Increase the ISO rating to enable you to set faster shutter speeds. This is the equivalent of using a faster film on a 35mm SLR. In the early days, any ISO over 400 would have been too noisy for most uses, but on the latest DSLRs, ISO 800 or even 1000 is OK to try.

✓ **FAST LENSES** The term 'fast lens' is used to refer to lenses with a wider than average aperture. Because these allow more light through, you're able to select a faster shutter speed. Unfortunately, they're relatively large and heavy, and very expensive!

PRO TIPS

DEPTH-OF-FIELD

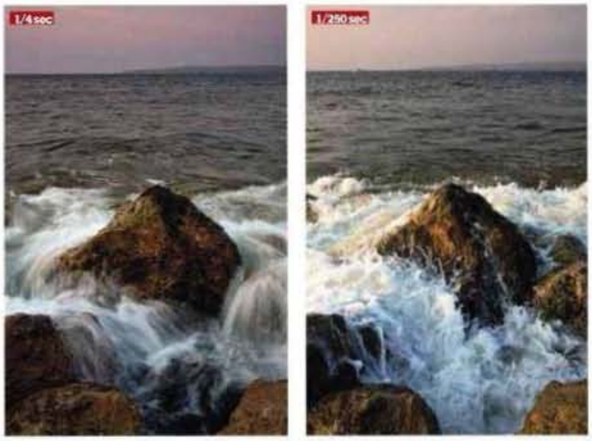
Using fast shutter speeds will result in wide apertures. Therefore, depth-of-field will be shallow. This will help your subject stand out from its background, but your focusing needs to be precise

ISTOCKPHOTO

Shutter speeds in landscapes

When shooting landscapes, you will sometimes have to decide between a long or short exposure. A fast shutter speed can freeze motion, while a longer exposure might be used to include plants in the foreground, blowing in the breeze or to create a 'silky' effect in running water. With fast moving subjects ,a 'long' exposure might be anything slower than 1/250sec, so you should shoot a series of exposures at various shutter speeds and use the LCD monitor to review the results.

The shots on the right illustrate the effect that shutter speeds can have on a landscape shot. With moving subjects, shutter speeds can make a big difference.



MARK BAUER

Summary: Fast shutter speeds

USE A FAST SHUTTER SPEED WHEN...

✓ You want to freeze the subject's movement

✓ **When you want to keep the corresponding aperture large to minimise depth-of-field**

✓ You are shooting handheld and want to eliminate the risk of camera shake

✓ **You are shooting in very bright conditions, to avoid any risk of overexposure**

Using slower shutter speeds

While you'll usually select faster shutter speeds to ensure your pictures are shake-free, for truly creative results, you'll want to master the use of slow shutter speeds, which could range from a fraction of a second to minutes!

Creative blurring

You can give the appearance of motion by selecting a slow shutter speed. At first, this might seem like a strange idea, but combined with the right subject, the results can be striking and help to emphasise movement in a shot. This type of intentional blur is common practice in scenic photography, often used to record flowing water as a milky wash, to add atmosphere. Blur can suit all types of subjects, such as a bustling crowd, crops or flowers swaying in the breeze, a flock of birds in flight or moving vehicles.

To achieve this effect, a tripod is essential. Blur is achieved using very slow shutter speeds, so without a support, you risk adding your own movement to the subject's. As a result, the whole scene will be blurred – not just the subject. The shutter speed required to create blur is relative to the subject's movement, but a good starting point is 1/8sec or slower. For more pronounced dramatic effects, a shutter speed of several seconds may be required. Achieving the best result can prove a fine balance – too little blur, and it won't look intentional; too much, and the subject may become unrecognisable; so to achieve your desired effect, you will need to experiment with different shutter speeds.

ISTOCK PHOTO

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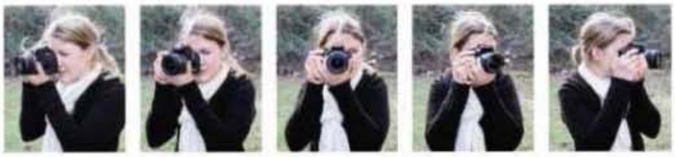
Panning a moving subject

'Panning' is a technique where the photographer shoots a moving subject whilst moving the camera in tandem with the subject's movement during exposure. The result is a sharp subject with a blurred background – suggesting a feeling of motion and action. It is a well used technique among sports and wildlife photographers to help create dynamic action shots. Panning requires a relatively slow shutter speed – typically in the region of 1/30sec. Track the moving subject through the viewfinder and continue to smoothly 'pan' the camera after you depress the shutter release button. For best results, try to position yourself so that you are parallel to the path of your subject – this will also simplify focusing – and keep your movement constant from start to finish, ensuring that the motion blur in the background of the image remains smooth. A steady hand and practice is required, but the results will reward your patience.



HOW TO PAN: When panning, make sure that you have a firm, comfortable grip on the camera. Keep the camera moving smoothly at the same speed as the subject, and use continuous shooting mode. It takes practice, but it is worth the effort!

Bulb setting

Most DSLRs boast a maximum shutter speed selection of 30 seconds. If you require an exposure longer than this – maybe to shoot star trails at night – the camera will need to be set to 'Bulb' or 'B' mode. Using this setting, the shutter will remain open for as long as the shutter release button is depressed – either manually or via a remote release. When using the Bulb setting, exposure has to be timed manually, meaning a degree of trial and error is often required to achieve correctly exposed results. When using the Bulb mode, a sturdy tripod is essential to ensure sharp results.

bulb F8
FINE
L
AF-S
A

ISTOCK PHOTO

Summary: Slow shutter speeds

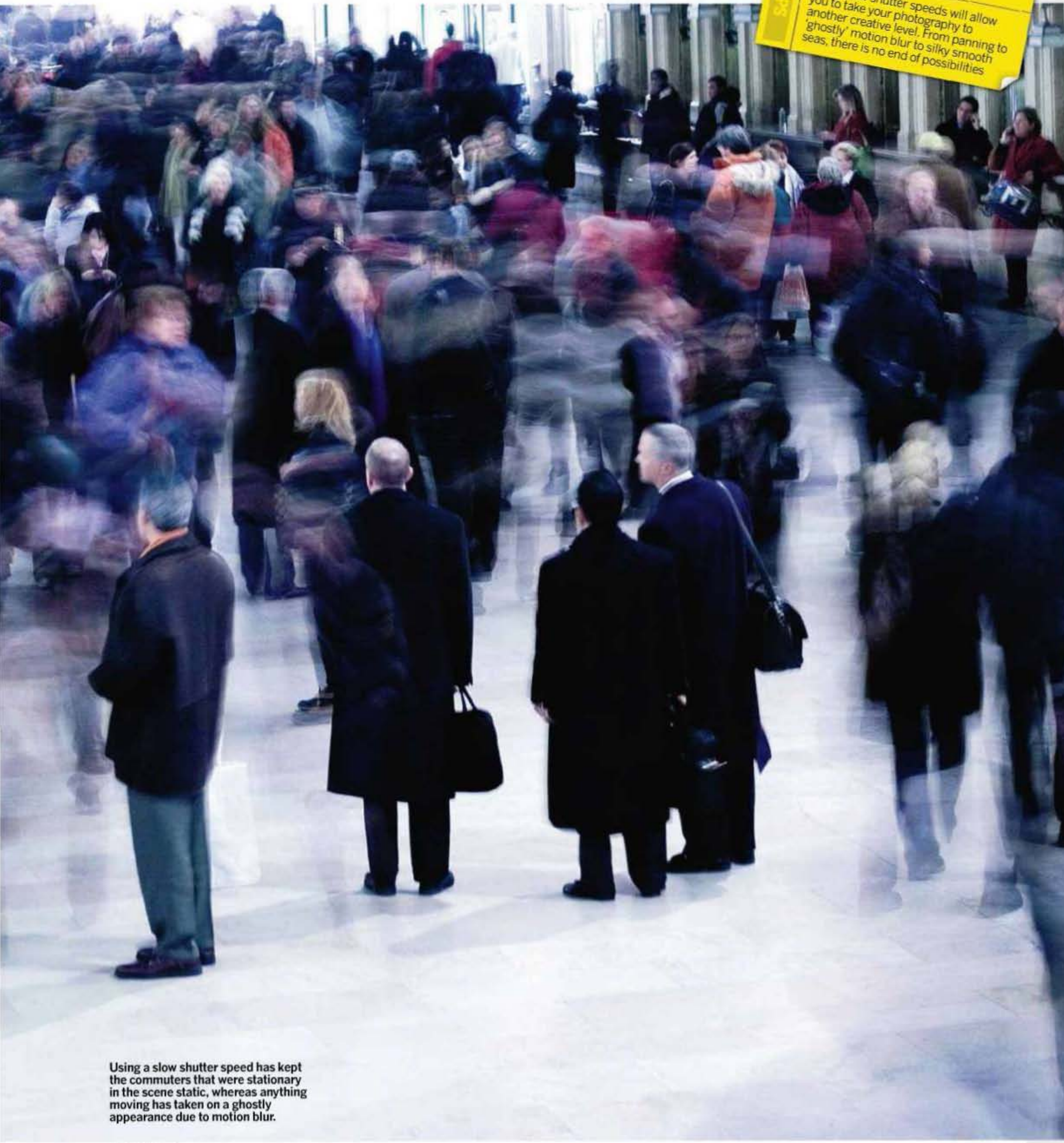
USE A SLOW SHUTTER SPEED OF 1/30SEC OR LONGER WHEN...

- ✓ You want to blur the subject's motion for creative effect
- ✓ **You want to maximise depth-of-field and shutter speed is of less concern**
- ✓ You are using a tripod, and there is no risk of camera shake
- ✓ **The light is limited, for example when shooting at night**

PRO TIPS

MOTION BLUR

Using slow shutter speeds will allow you to take your photography to another creative level. From panning to 'ghostly' motion blur to silky smooth seas, there is no end of possibilities



Using a slow shutter speed has kept the commuters that were stationary in the scene static, whereas anything moving has taken on a ghostly appearance due to motion blur.

ISTOCK PHOTO

Movement: Rivers and streams

Ross Hoddinott provides some expert advice and tricks of the trade to help you use slow shutter speeds to transform fast moving water into stunning milky trails

TRADITIONALLY, WATER IS one of the most popular subjects among photographers. Picturesque rivers, streams, waterfalls and weirs will soon have snappers reaching for their digital SLR. However, the look and feel of the final image will be greatly dictated by the shutter speed selected.

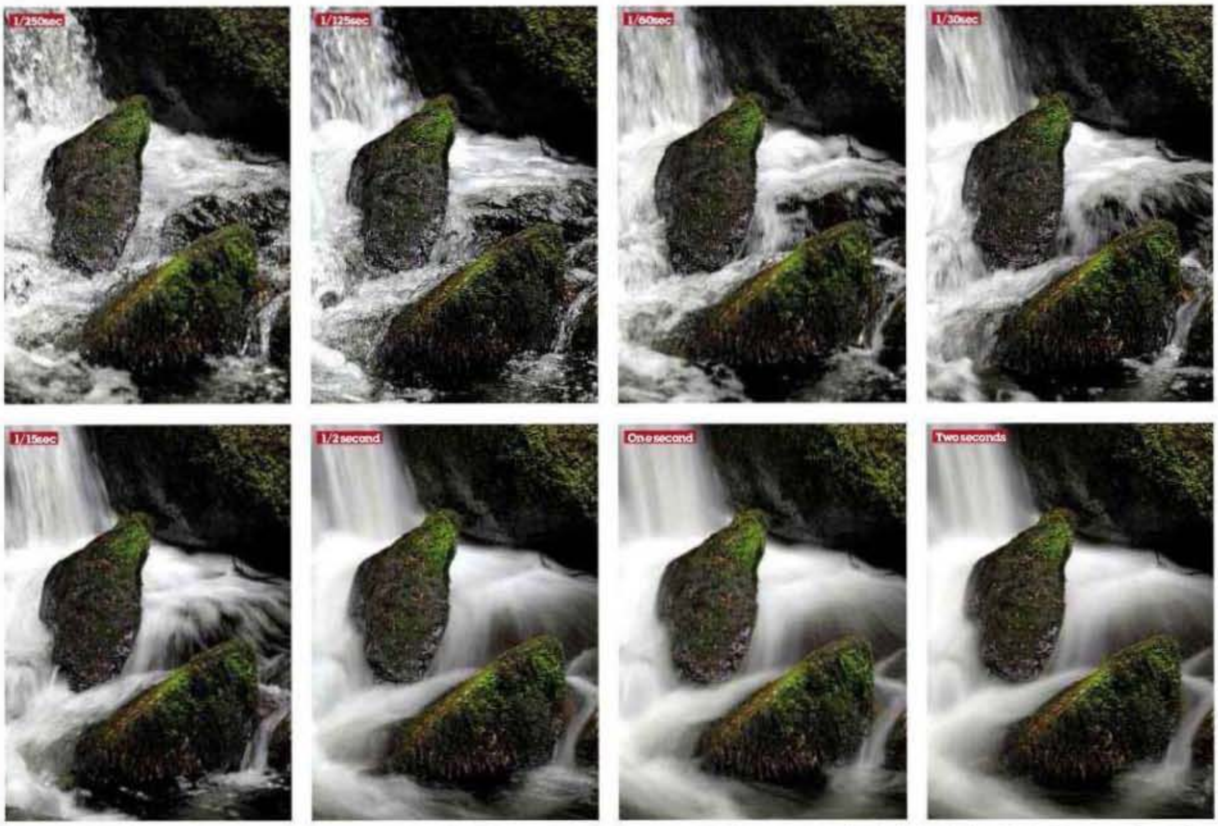
When shooting running water, you have the ability to convey either a sense of action or motion – the choice is yours. For example, a fast shutter speed of 1/500sec or quicker, will freeze the water's movement – suspending every last tiny droplet. This effectively creates a feeling of action. Select a slow shutter speed of one second or longer and gushing water will be reduced to an atmospheric, milky blur. This effect gives the impression of movement and, combined with the right scene, the results can be stunning. In fact, employing a lengthy exposure to blur water is a popular and well used technique today and, while some would argue the effect can look a little cliché, it is an approach many of the top professionals regularly employ.

Blurring water is a relatively easy thing to do – try it for yourself. Any shutter speed exceeding 1/30sec will blur rapid water movement. However, to create the atmospheric, ethereal blur most photographers desire, an exposure of one second or more is normally required. To generate such a lengthy exposure, employ a small aperture of f/22 or f/32 and your camera's lowest ISO sensitivity – this will also help maximise back-to-front sharpness and image quality respectively. It is also best to shoot on an overcast day. By doing so, shutter times will be significantly lengthened and lighting will be less contrasty; benefiting the end result. If the conditions are bright, you may find that the only way to create a sufficiently long exposure is to attach a Neutral Density (ND) filter – designed to reduce the amount of light entering the lens (see right). Even in dull, overcast light, an ND filter can prove a handy tool, creating artificially long exposures of up to 30 seconds – producing even more dramatic and eerie results. One final word of advice; to avoid camera shake, always use a sturdy tripod and release the shutter using the self-timer or a remote release.

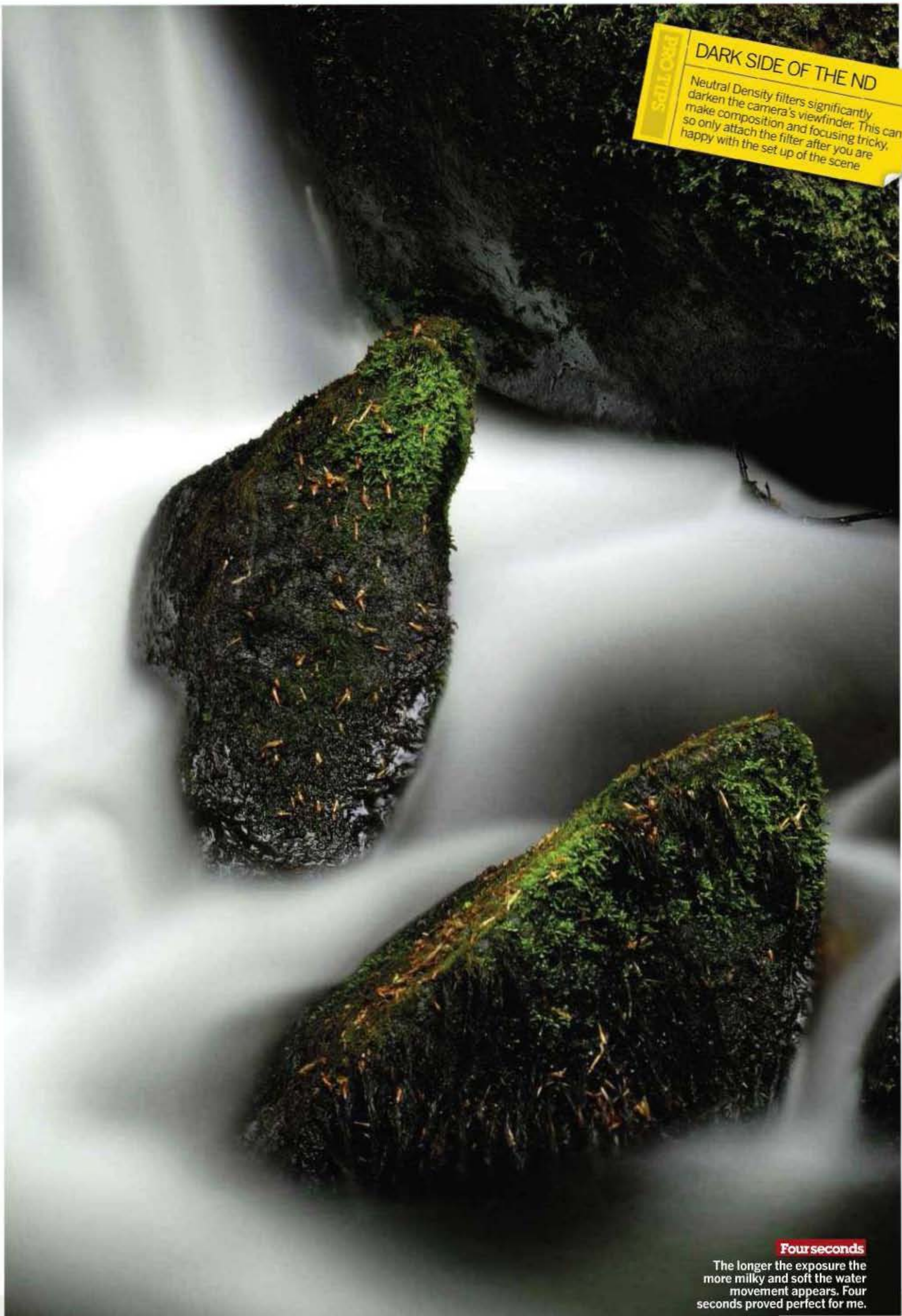
Useful filters

NEUTRAL DENSITY (ND)

Neutral Density filters are essential accessories for photographers wishing to create the appearance of movement. They are designed to reduce the amount of light entering the lens, which can lengthen exposure to emphasise motion. ND filters absorb all the colours in the visible spectrum in equal amounts. Therefore, they do not create a cast of any kind; altering only the brightness of light, not its colour. ND filters are available as both slot and screw-in types and in progressive strengths. A density of 0.1 represents a light loss of 1/3 of a stop. Therefore, a 0.3ND is equivalent to a full stop of light. A digital SLR's metering system automatically compensates for the attached ND filter. So, correctly exposing images shouldn't pose a problem.



ABOVE & OPPOSITE: When using a long exposure to deliberately blur water movement, it's important to also include static objects. For example, with a river scene, include a boulder or bridge to harness the composition. Otherwise, the water will be indistinguishable. When I spotted this photogenic mossy boulder – with water rapidly cascading around it – I decided that rather than include it as part of a wide-angle view, I'd make it my focal point. I wasn't sure what exposure length I would need to create the desired effect, so I began by using a relatively fast exposure of 1/250sec. Then, in subsequent shots, I reduced the shutter speed in one-stop increments. A lengthy four-second exposure created just the right effect.



PRO TIPS

DARK SIDE OF THE ND

Neutral Density filters significantly darken the camera's viewfinder. This can make composition and focusing tricky, so only attach the filter after you are happy with the set up of the scene

Four seconds

The longer the exposure the more milky and soft the water movement appears. Four seconds proved perfect for me.

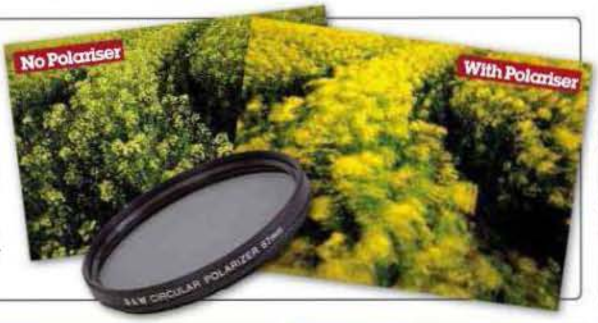
Using movement in landscapes

Ross Hoddinott has a closer look at how to get the best from slow shutter speeds

DO YOU EVER feel that your landscape images sometimes appear static and lifeless? It is a common complaint, but one that is easily remedied by taking creative control over exposure. While landscape photographers are often taught to prioritise back-to-front image sharpness, as we have mentioned before, a degree of subject blur within the scene can prove a powerful visual tool. It can create a genuine sense of motion that, when combined with a suitable scene, can be very attractive. Landscapes are probably one of the best subjects to use if you want to experiment with, and explore, the potential of slow shutter speeds. The range of material to shoot is endless and the wind can enhance any movement you try to capture. So, instead of attempting to freeze the movement of a crop of golden barley, swaying buttercups or wind-blown trees, why not go to the opposite extreme and shoot to capture their movement. The results can be stunning. However, creating just the right effect can be tricky. Too much motion, and detail can grow indistinguishable; too little, and it will not look intentional. It is a fine balancing act. There are no set rules regarding the shutter speed you should select; it will vary depending on the landscape, strength of the wind and the effect you wish to achieve. Experimentation is important. Bracket exposures by one-stop increments and check images on your LCD monitor to help discover the best effect.

Use a polariser

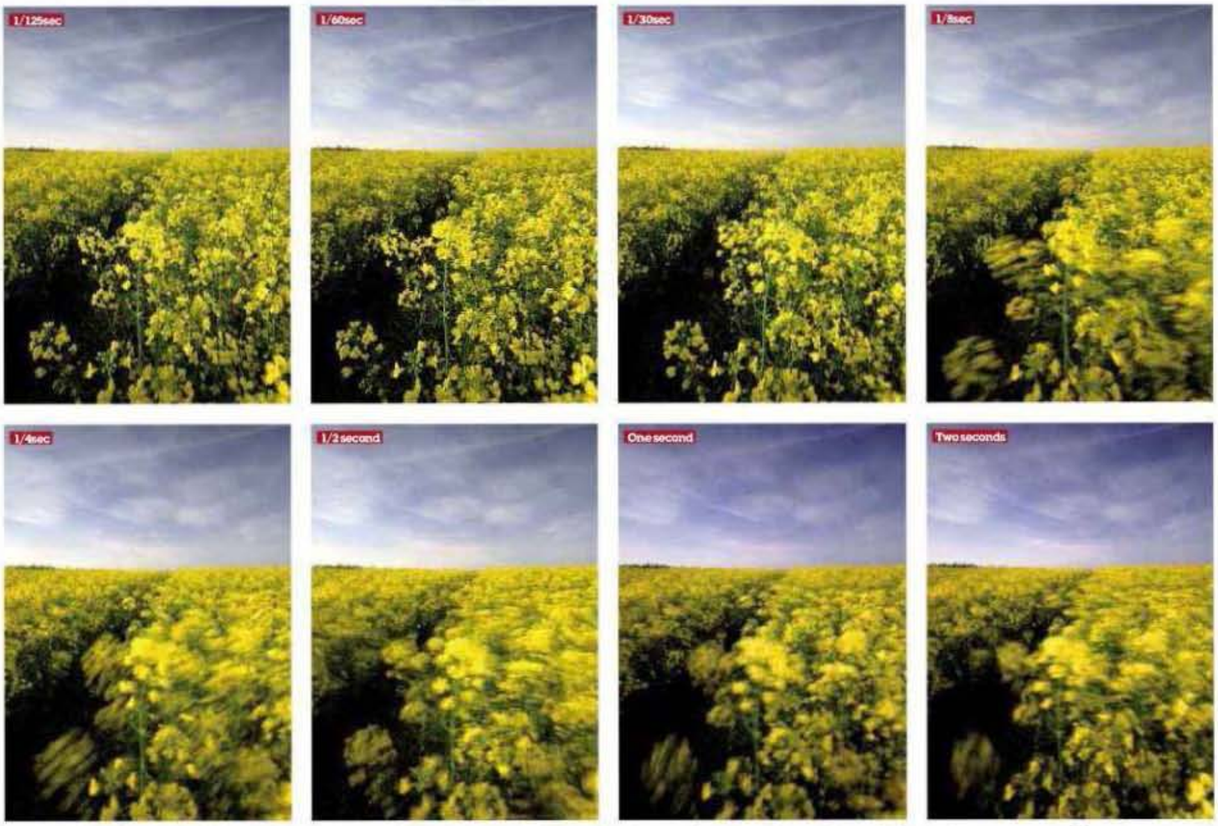
If you don't own a Neutral Density filter, then use a polariser instead. While not all polarising filters are totally neutral, they have a 'filter factor' of two stops – equivalent to a 0.6ND. Therefore, they can be used as a makeshift ND with the added benefit that reflective glare will also be reduced. This will saturate colour and give your shot more impact.



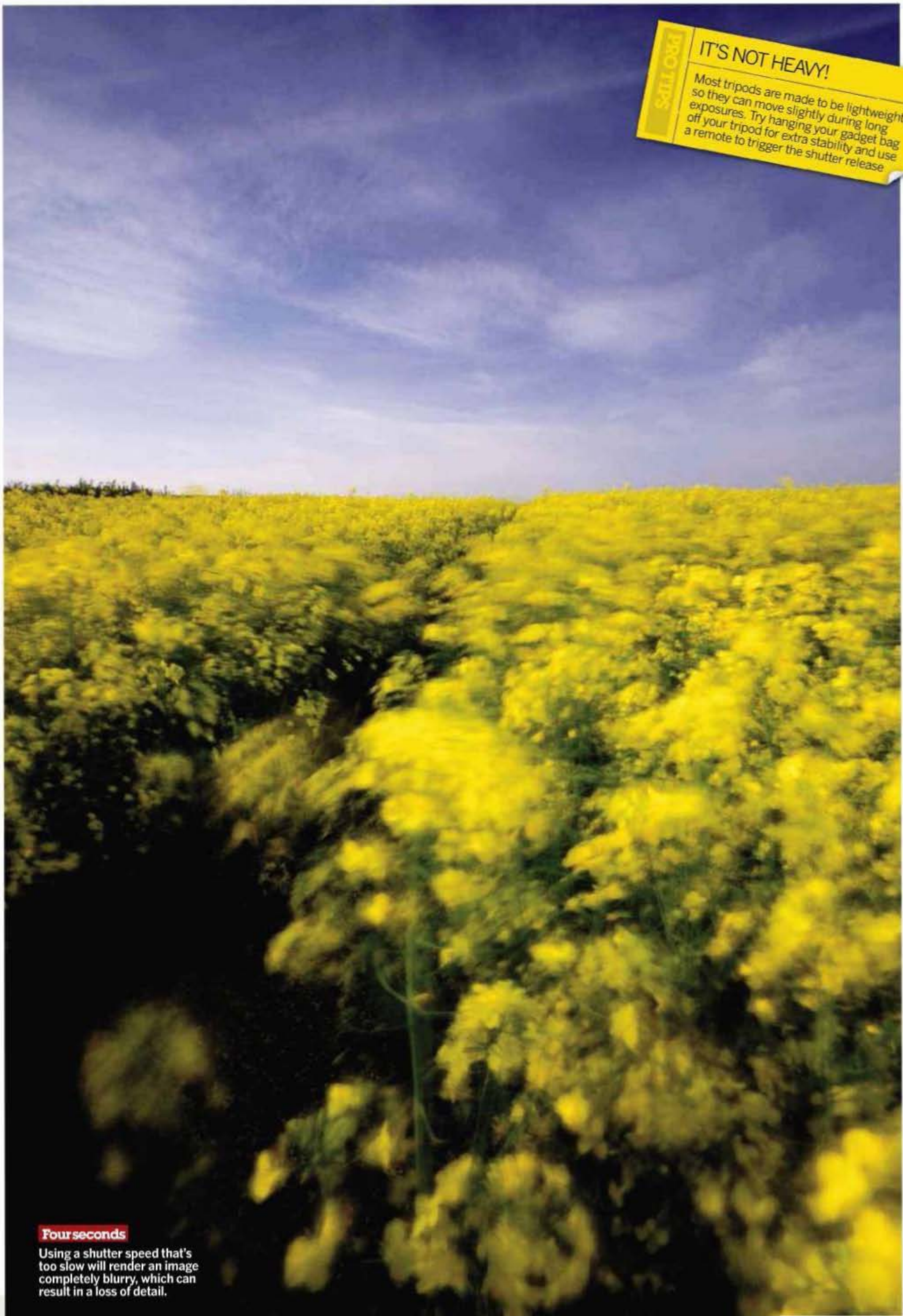
Noise reduction (NR)

Noise – randomly-spaced, coloured pixels – is more obvious in images captured using a long exposure. It is for this reason that the majority of digital SLRs are designed with a long exposure noise reduction (NR) facility. This can normally be accessed via one of the camera's setup menus and is designed for when shutter speeds exceed four seconds. When switched on, images will be processed in-camera to reduce the image-degrading effects of noise. Although continuous burst speed, and the number of images that can be stored in the camera's buffer, will be reduced as a result, NR is a handy feature to use with very long exposures.

SHOOTING MENU
Optimize image
Image quality
Image size
White balance
ISO sensitivity
Noise reduction
Nikon



ABOVE & OPPOSITE: This field of oilseed rape made a bright and colourful landscape. I composed my shot and then took a sequence of images employing progressively longer shutter speeds. The first image, shot at 1/250sec, has perfectly frozen the movement of the flowers in the summer breeze. Subsequent images, at 1/125sec and 1/60sec, look very similar. However, once exposure time lengthens beyond 1/30sec, subject movement grows increasingly noticeable and at shutter speeds of one second and more, the flowers are rendered as a yellow haze. While the effect isn't unpleasant, in this instance, I prefer the result achieved using a shutter speed of 1/2 second.



PRO TIPS

IT'S NOT HEAVY!

Most tripods are made to be lightweight, so they can move slightly during long exposures. Try hanging your gadget bag off your tripod for extra stability and use a remote to trigger the shutter release.

Four seconds

Using a shutter speed that's too slow will render an image completely blurry, which can result in a loss of detail.

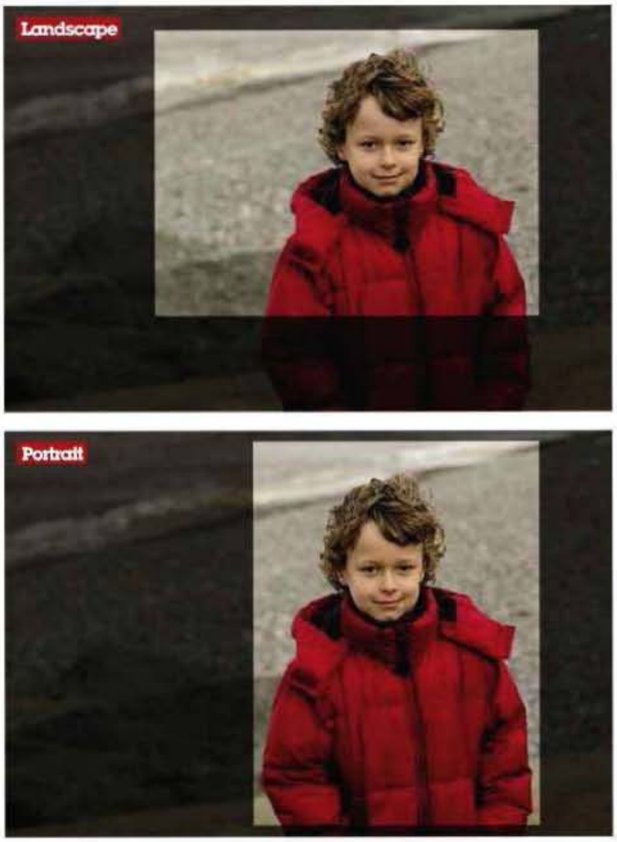
Shoot daylight portraits

The creative scope for composition and the use of daylight is vast. But while there are no rules, we offer some guidelines that are sure to improve your portraits

PORTRAITURE IS ONE of the most popular subjects for photographers but also one that newcomers to DSLR photography struggle with. That's understandable as not only do you have to take control of all your camera's settings, you also need to be able to work with your subject and know how to manipulate the lighting. In this section of the guide, Daniel Lezano covers all the basics you need to know to help you develop your portrait photography skills, using nothing more than ambient daylight as your source of illumination. We'll also be showing you the best camera settings to use and recommending essential gear to ensure that no matter the conditions, you'll be able to create stunning portraits with ease.

Landscape or upright format?

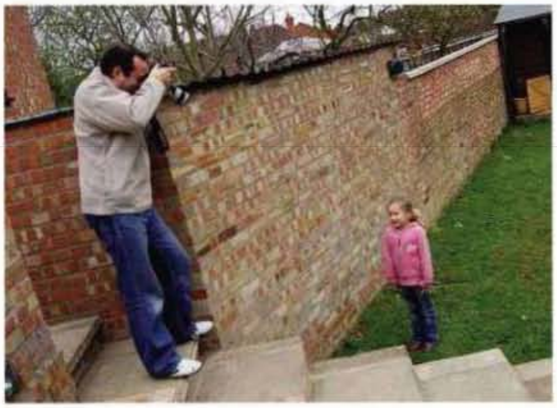
It's natural to tilt the camera upright when you're shooting a portrait as it allows you to fill the frame with the subject's head and shoulders or entire body. It's also a good format to adopt when you're trying to exclude as much of the background as possible to concentrate attention on the subject. Because this orientation is used so often when shooting people, the upright format is often termed the portrait format. Shooting portraits with the camera held horizontal to produce a landscape-format shot often allows for more creative compositions. For one, it allows you to place the subject off-centre to include some of the backdrop in the frame. It also allows you to crop tightly into the face, which can add drama and impact to the scene. Both options are worth trying while looking through the viewfinder to see which works best. If in doubt shoot both ways!



We cropped the same image into a landscape and portrait format. Which do you prefer? Choosing the orientation of your picture is a key decision you need to make each time you compose as can make or break your shot.

Viewpoint

It's natural when taking a picture to stand and shoot from your normal eye-level height. However, while there is nothing wrong with this, shooting from a normal viewpoint is a little unimaginative. It's not the most flattering angle either. You'll find that by shooting from slightly above your subject's eye level, you'll create a more dynamic image. Experiment by shooting from a much higher or lower viewpoint to your subject and see how the results turn out.



Shooting a subject from halfway up some steps provides a very high viewpoint and an unusual and quirky result. Give it a go!

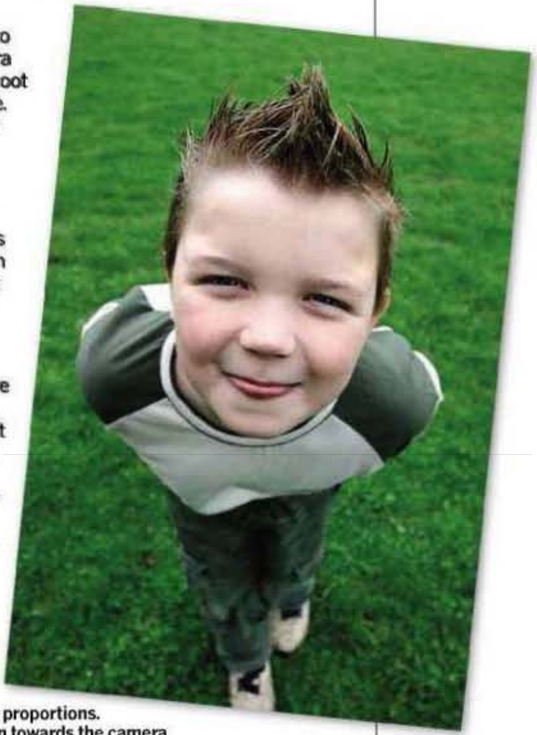
Breaking the rules: New angles to try

USE A WIDE-ANGLE

Set your standard zoom to wide-angle (or use an ultra wide-angle zoom) and shoot portraits with a difference. Because they completely distort perspective, it's possible to shoot very unusual portrait images, where the part of the subject closest to the lens appears much larger than the parts of the body that are further away.

EYE CONTACT

We harp on about you making sure both eyes are in focus with the subject looking at the camera, yet there are many stunning examples where the subject's looking away or their eyes are obscured. A lack of eye contact can add intrigue to your portrait or give it a candid feel, so don't be afraid of having your subject look away from the camera

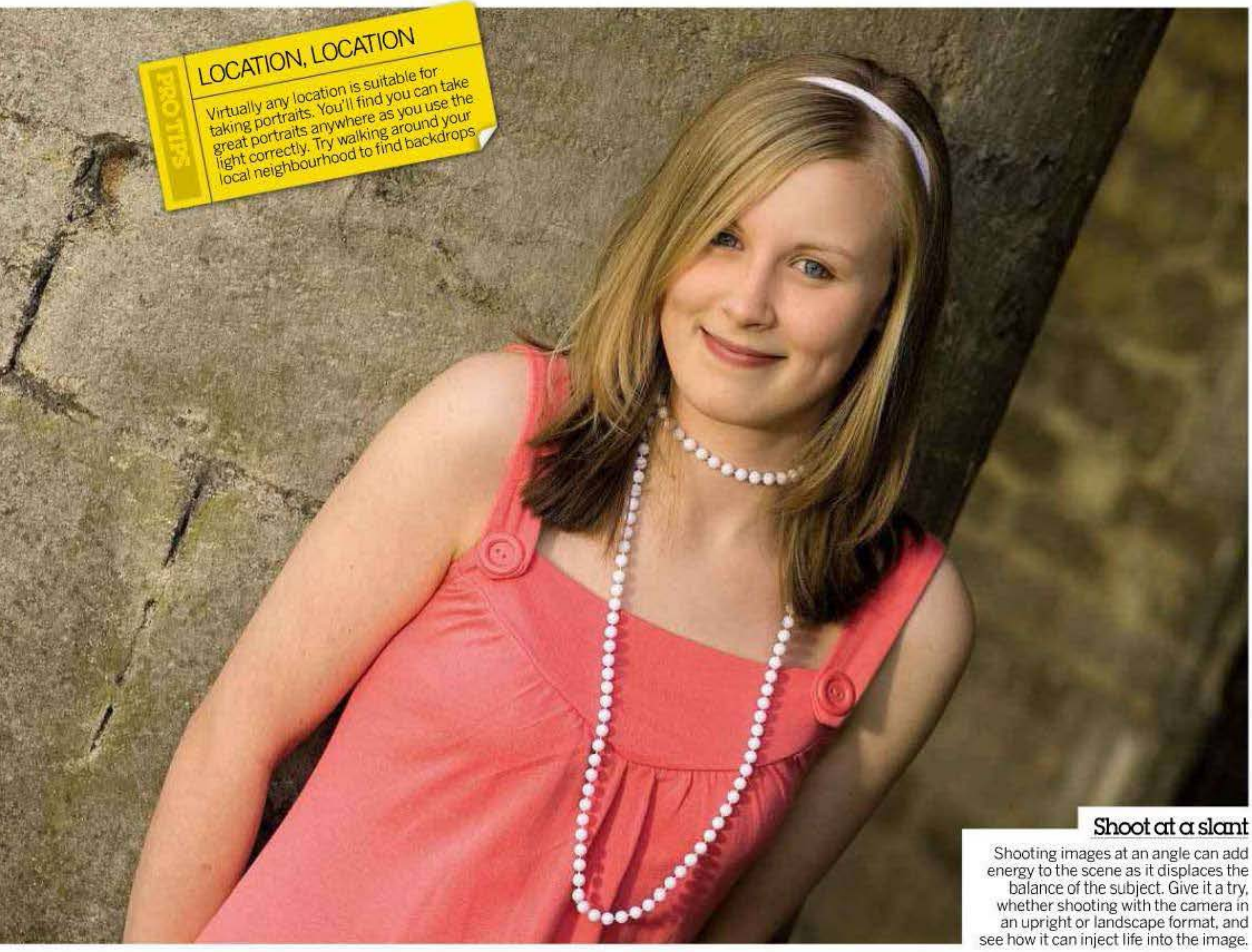


A wide-angle lens distorts proportions. Try having a subject lean in towards the camera for a more interesting, fun take on a portrait shot.

PRO TIPS

LOCATION, LOCATION

Virtually any location is suitable for taking portraits. You'll find you can take great portraits anywhere as you use the light correctly. Try walking around your local neighbourhood to find backdrops



Shoot at a slant

Shooting images at an angle can add energy to the scene as it displaces the balance of the subject. Give it a try, whether shooting with the camera in an upright or landscape format, and see how it can inject life into the image.

Portrait composition: Frequently asked questions

Why should I not use Portrait exposure mode?
While the Portrait mode takes the fuss out of taking a picture, it also removes any chance of being creative. As with all programs, Portrait mode automatically activates certain picture-taking options. Depending which camera you use, you'll find that setting Portrait mode results in the following: ***White Balance: Set to Auto; Autofocus: Multi-point AF/ One-shot mode; ISO Rating: Automatically selected; Metering pattern: Multi-zone; Built-in flash: Auto.*** While these settings are suitable for those looking for point-and-shoot simplicity, for those of you looking to develop your photographic skills, it's quite prohibitive and the fact that you can't control aspects like the flash and White Balance can really affect the result you're trying to achieve. Instead, learn how to get the best from aperture-priority.

What should subjects wear?
The most important thing is that your subject feels comfortable. So don't get them overdressed or wearing items that they don't like. Ideally, ask to see a selection of clothing and talk through which they like best. You don't want colours to dominate, so a plain neutral top is usually a good starting point, along with casual trousers or a pair of jeans.

How should I get them to pose?
It's vital that they appear natural and comfortable, whether they're sitting, standing or lying down. You'll find that subjects are normally unsure of what to do with their hands, resulting in them looking clumsy or awkward in the frame. A good starting point is have them keep them in their trouser pockets if standing or hanging over their knees or between their legs if sat down. Buy fashion and lifestyle magazines and tear out pages where a model has a pose you like, then show it to your subject and ask them to recreate it.

Have you any make-up tips?
Professional make-up artist Fay Bacon offers expert advice:
1) Always thoroughly cleanse, tone and moisturise the skin before applying any make-up. This will help the products to sit and set better on the skin.
2) Apply an illuminator over the top of a moisturiser. This helps lift the skin and increase its radiance underneath the foundation, so skin appears more youthful.
3) Always apply foundation with a make-up brush. This reduces the amount of foundation used on the skin and prevents patchiness or lines on the face, making the skin appear flawless and natural in the images, reducing post production.
4) Use a translucent, loose powder and dust it lightly over the 'T-Zone' area. This reduces the appearance of shiny, oily skin.
5) Always use concealer for disguising dark circles and unwanted blemishes. Please note the enormous difference between foundation and concealer – concealer covers, foundation evens out the skin tone.
6) In terms of colour e.g eye shadows, blushers, lipsticks etc, always consider the colour contrasts of skin tone, eyes and lips. Dependent upon the style and theme of the photography, certain make-up rules do not apply. However, most make-up artists would advise using lighter and more intense shades such as purples, blues and greens on darker skin and eyes, as this helps echo the beauty and vibrancy of the skin tone. Pastel, neutral and darker shades are best suited for paler skin as they help intensify the eye area and skin tone itself by allowing both to stand out more.

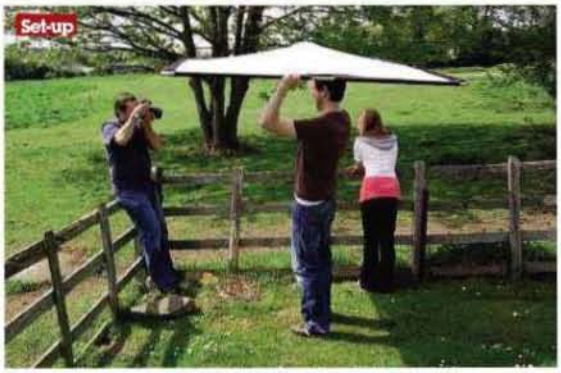
Controlling daylight situations

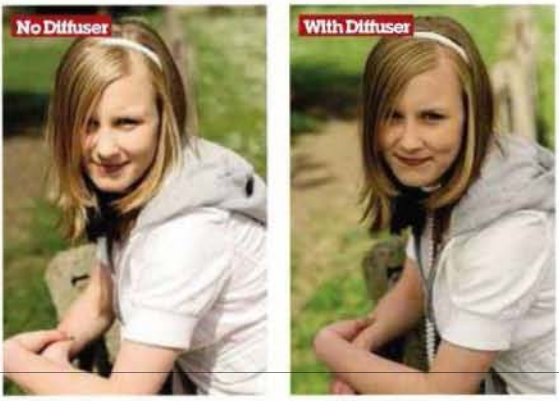
If you're developing your skills as a portrait photographer, then you'll need a good understanding of how to control daylight. Over the next few pages, we'll show you some basic techniques that can make major improvements to your daylight portraits, whether shooting in sunlight, shade or overcast conditions

A COMMON MISCONCEPTION with many newcomers to photography is that bright sunshine is the best light to take portraits in. The truth is that it's actually one of the worst: It's potentially a very unflattering light to work with, unless you know how to control it. If your subject's facing into the sun, it's likely that they are heavily squinting, which won't look great in the photos! Also, the directional light won't be making the most of their features, with strong highlights and deep shadows. However, if you know how to manipulate and control sunlight, it opens up the options for you to shoot in virtually any outdoor location in the knowledge that you'll capture great results.

Use a diffuser

Stick a diffuser between the sun and your subject and you'll instantly cut off the direct light and get better results. Diffusers play their part when shooting in strong, directional light, such as bright sunshine. They're basically a large sheet of diffusing material fitted to a frame (normally lightweight aluminium tubing). Placing the diffuser between the light source and the subject cuts down the light's intensity, while also diffusing it to give a softer, more pleasing effect. They're usually quite large and come in various diffusion strengths, with Lastolite and California Sunbounce being two of the more popular brands.
The diffusing material can be replaced and comes in different thicknesses, which determines the extent of the diffusion.





Direct sunlight is a very harsh type of light and extremely unflattering for portraits. As our set of examples show, the simple use of a diffuser reduces the harsh contrast, making an immediate improvement.

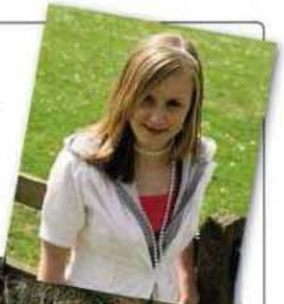
Essential accessories

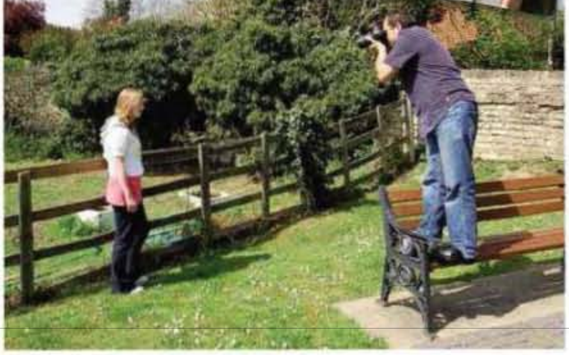
REFLECTORS: One of the best accessories that you can invest in for shooting portraits is a reflector. With decent collapsible handheld reflectors starting at around £20, these inexpensive items will make a major difference to your photographs. Reflectors can be used in virtually any situation to bounce light on to your subject to help shape the light on their face, fill in shadows etc. Reflectors come in various shapes, sizes and colour finishes, which affect the intensity and colour of the light being reflected back on to your subject. White produces medium-intensity and quite soft light, while silver and gold are far more efficient, delivering a stronger result. Most reflectors come with a different colour surface on each side – we'd recommend silver/white as a good first choice.

LENSES: A short telephoto provides the most flattering focal length. Lenses that cover focal lengths of around 50-130mm (35mm equivalent: 75-200mm) are ideal for portraits as they flatten perspective. So you can happily use the tele end of your standard zoom (18-55mm) or even better a telezoom like a 55-200mm. Unless you're looking to purposely exaggerate perspective and produce wacky effects, we'd suggest you steer clear of using wide-angles to begin with.

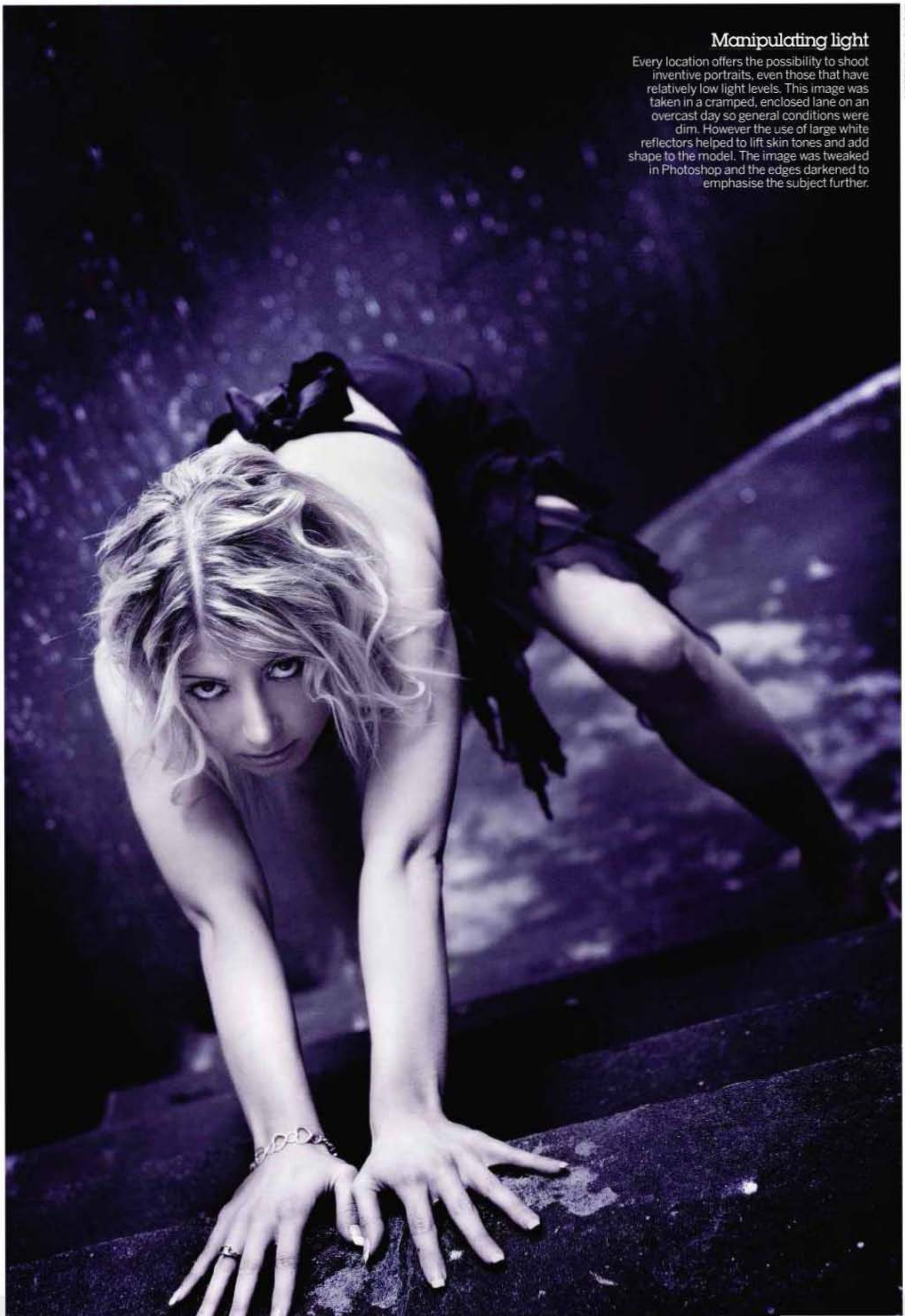
Face away from the sun

If you haven't got a diffuser, then try facing the subject away from the sun. This way, their face will be in shade, and often the sun captures attractive highlights in the hair. If your subject has long hair, use it to provide a light shield to prevent sunlight hitting their face, as we've done here.





If a diffuser is unavailable, then have your subject face away from the sun. Adopting a higher viewpoint and having the subject tilt her head down slightly helps make the most of the sunlight on her hair.



Manipulating light

Every location offers the possibility to shoot inventive portraits, even those that have relatively low light levels. This image was taken in a cramped, enclosed lane on an overcast day so general conditions were dim. However the use of large white reflectors helped to lift skin tones and add shape to the model. The image was tweaked in Photoshop and the edges darkened to emphasise the subject further.

BJORN THOMASSEN

Cloudy conditions

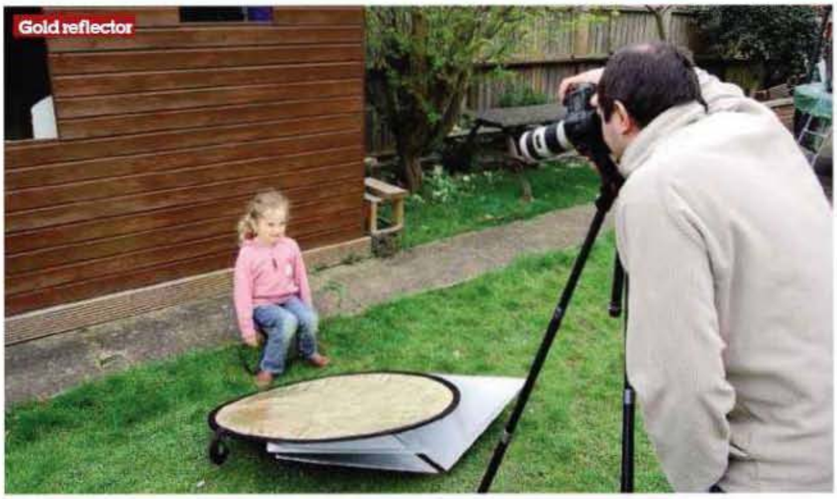
Dull weather days can sometimes be the best for portrait photography. We show you how to make the most from minimal light using a reflector and dash of creativity

IF YOU WERE planning to shoot landscapes and looked out the window to find the sky filled with grey cloud cover, you'd not be happy. However, for the portrait photographer, a grey blanket of cloud is viewed as Mother Nature's own diffuser. Overcast conditions take away much of the pain of shooting outdoors as there is no need to worry about strong sunlight. However, that's not to say that because there's no direct light, there is no way for you to manipulate light. Even on the dullest of days, using a white or metallic reflector can bounce light back on to the subject. And because you have no directional light to contend with, you have almost total freedom to position your subject where you like as there's no sun to contend with. Bear in mind that because the light source is diffused light from above, you'll find it better to keep the reflector below the subject and angled to point upwards. Move the reflector towards and away from the subject to achieve the intensity of reflectance that you require. Also, change its position and angle to help 'shape' the light that bathes your subject's face.

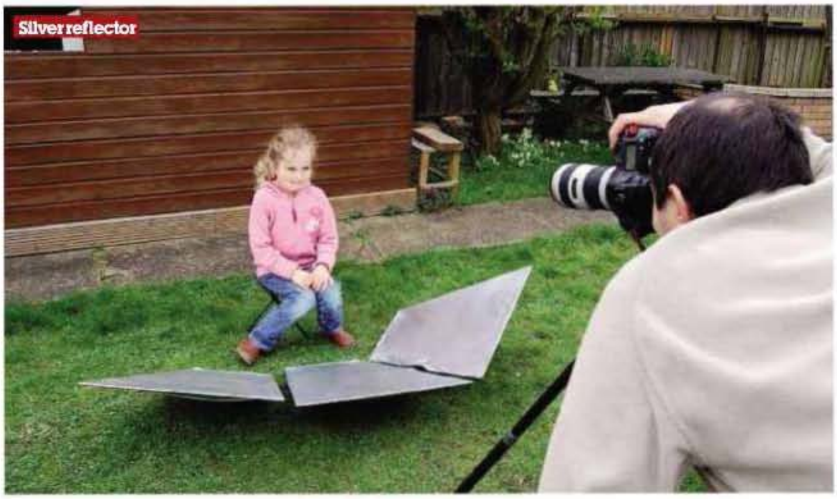
The following step-by-step was taken on a day when the sky was totally covered by a blanket of grey cloud. We photographed Ruby in her garden, sat in front of a brown playhouse, which provided a dark, neutral backdrop for minimal distractions. She wore a light pink top that added colour into the scene without being over-powering.

Environmental reflectors

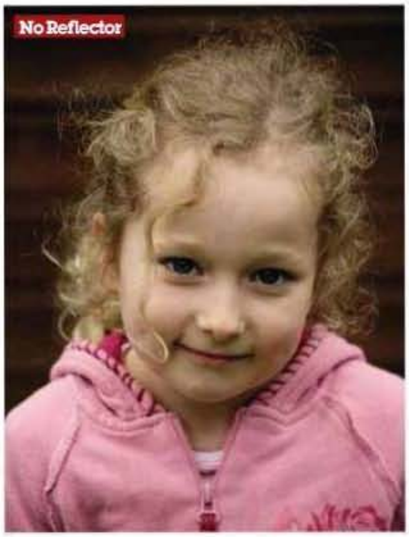
Keep your eye out for objects in the location that can act as a reflector. White walls are ideal not only as a backdrop but also to provide reflected light. You'll also find the light that bounces from standard house bricks work well too. Bear in mind that coloured walls will reflect coloured light, so avoid strong colour walls like red, blue or green.



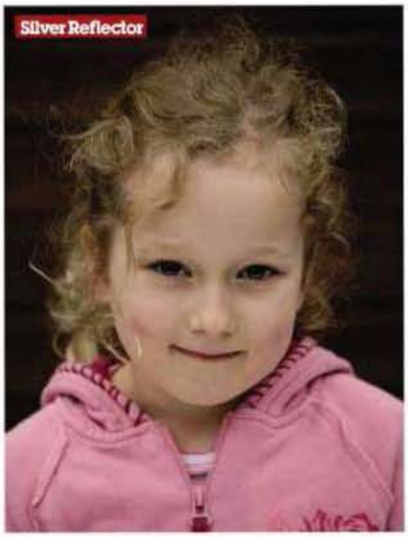
Gold reflector



Silver reflector



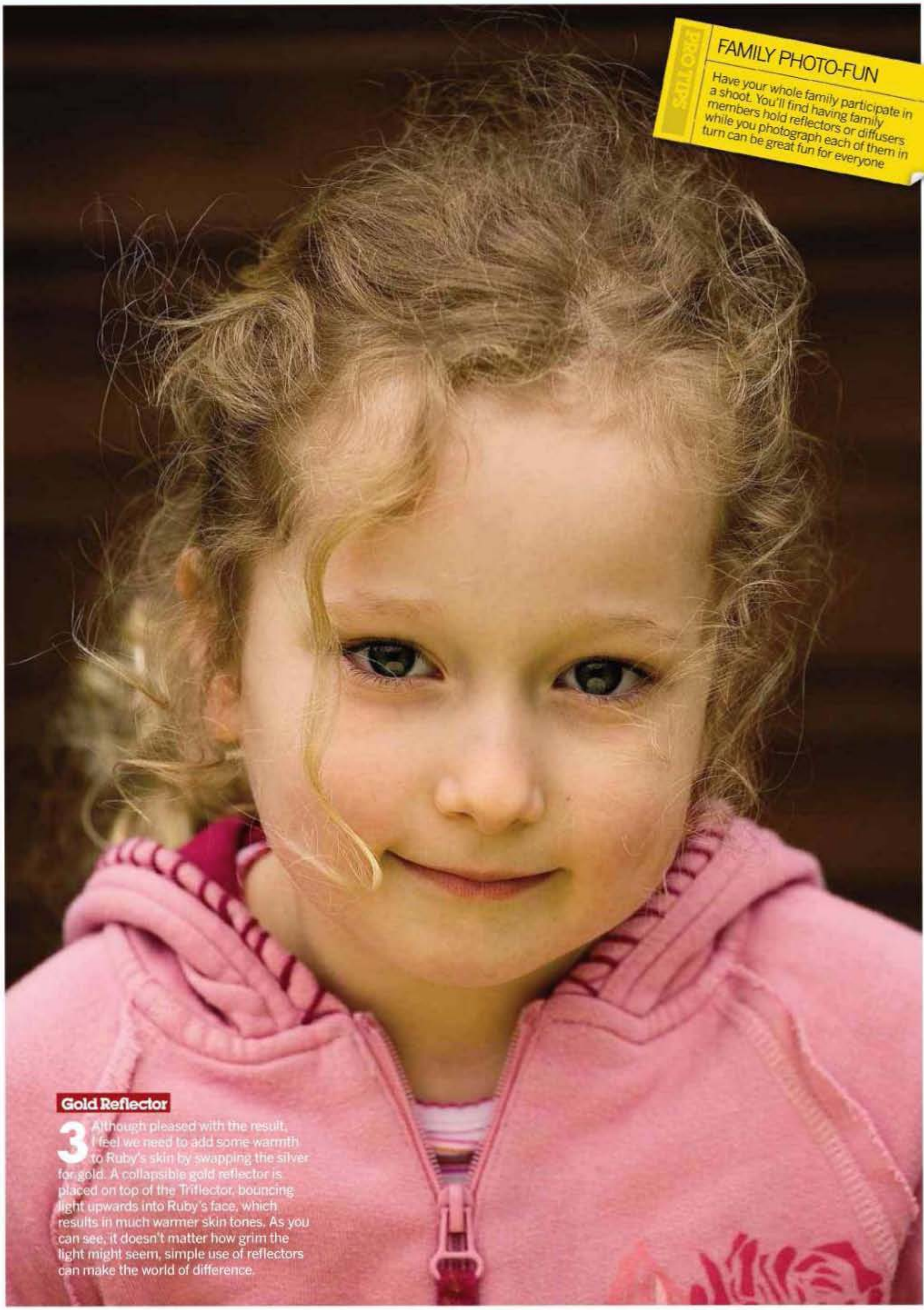
No Reflector



Silver Reflector

1 This is Ruby photographed without any form of lighting control used. The shot's OK, but shadows under the eyes and on the lower parts of her cheeks and chin aren't particularly attractive. Tilting her head up would remove many of them but then the pose would be quite awkward. We'll aim to get around the problem by using reflectors. We try a white reflector but the dull light means it has minimal effect.

2 Instead we opt for the use of a silver reflector. The Lastolite Triflector is a versatile accessory that uses three separate panels so that you can control the angle of reflectance. It's placed on the ground, quite close to Ruby and below my eye level, so that I'm shooting over the top of it. As you can see, its effect is obvious – shadows are removed and the effect is more flattering than before.



PRO TIPS

FAMILY PHOTO-FUN

Have your whole family participate in a shoot. You'll find having family members hold reflectors or diffusers while you photograph each of them in turn can be great fun for everyone

Gold Reflector

3 Although pleased with the result, I feel we need to add some warmth to Ruby's skin by swapping the silver for gold. A collapsible gold reflector is placed on top of the Triflector, bouncing light upwards into Ruby's face, which results in much warmer skin tones. As you can see, it doesn't matter how grim the light might seem, simple use of reflectors can make the world of difference.

Shooting in shade

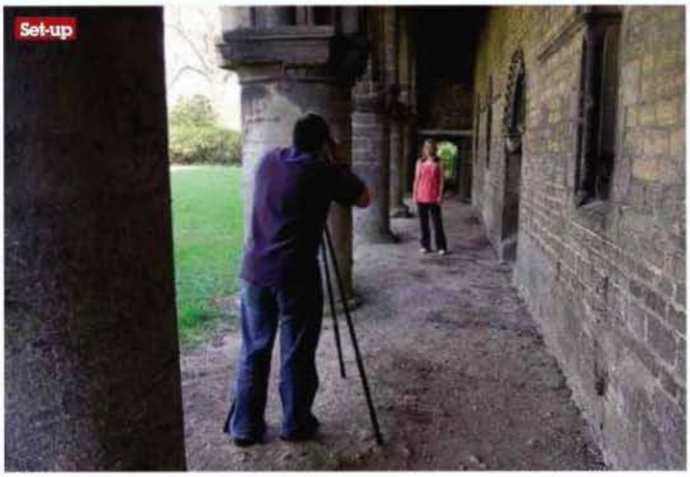
Like clouds, shady places are a natural diffuser and will make shooting portraits a whole lot easier

WHILE SHADY CONDITIONS are associated with flat, cool light, the opposite is often true and taking portraits in shade offers great opportunities for portrait photography. The lack of direct light means that you've not got any harsh highlights or deep shadows to contend with. Instead, the subject is usually bathed in a very soft light that flatters their features – in many ways much like in overcast conditions.

One thing you may not realise is that you can manipulate the light to quite an extent in shade. The key thing to remember is that the light reaching your subject is determined by the reflective surfaces in the scene around your subject. So have a look at different locations and see how your subject looks close to white surfaces, brick walls, metal shutters etc. Bear in mind that dark or black surfaces can also be used – you'll find that rather than bounce light onto your subject's skin, they have a negative reflectance that can help reveal the shape and contours of your subject's face. You'll find that all surfaces produce their own type of effect and that moving the subject closer or further away varies its intensity.

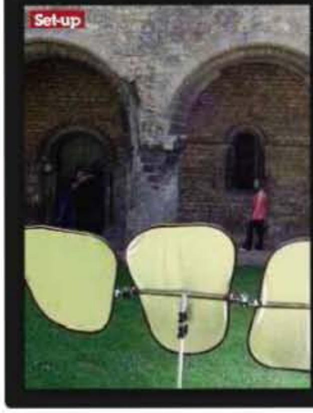
On days when the sun is shining in particular, you'll not only have the advantage of making the most of shade's non-directional and flattering light, you'll also have the option to bounce light from sun-lit areas into the scene. So look for locations where you can position the subject in shade but close to areas in direct sunlight. You can then think about using reflectors to bounce light in to add extra illumination.

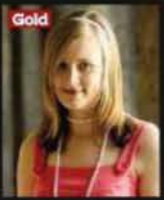
You should also consider how your subject is positioned against the backdrop. On a sunny day, if you place your subject with their back to the sunlight, because you're exposing for the shaded subject, the brighter background will be grossly overexposed, resulting in a clean, bright backdrop. The other major advantage of shooting in shade on a sunny day compared to overcast conditions is that light levels are higher, which allows for more control and manipulation. We headed for a favourite portrait location that offers excellent potential for shooting in shade on a sunny day. An old priory offered the perfect setting for our shoot, providing an interesting and attractive backdrop for our shoot. We asked Hayley to wear a bright, summery outfit in keeping with the bright, warm conditions and placed her in the shade of the priory's side.

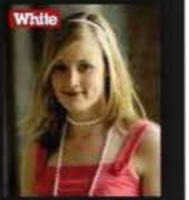


Bouncing sunlight into shade

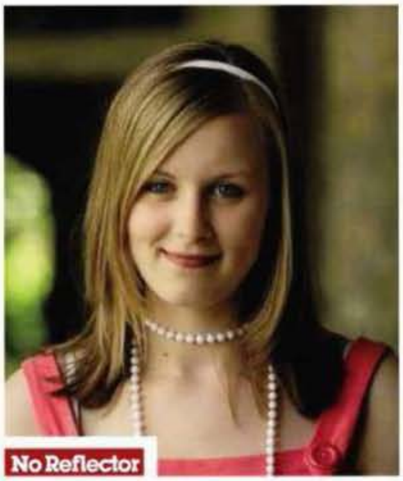
An advantage of taking pictures in shade on a sunny day is that you can bounce sunlight back into the frame. This allows you to add stronger side-lighting or to lift the brightness level of your subject to make them stand out against the background. What you have to take care with is that you don't bounce too much sunlight into the scene and create a too harsh a side-light, as is often the case when using metallic reflectors.





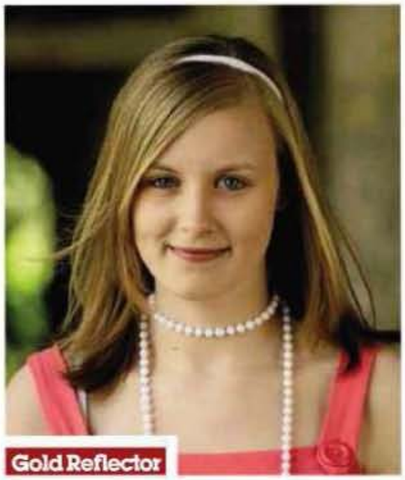


We asked Hayley to stand quite close to the edge of the shaded area and used the gold reflector to bounce light towards her. As you can see, she receives a very strong side-light that is harsh and unflattering. We swap the gold reflector for a white one and there is an instant improvement. The light from this reflector is softer and more diffuse, so gives a far better result.



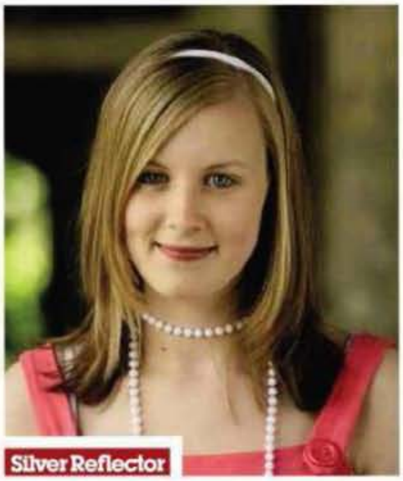
No Reflector

1 Our first shot was taken without any form of lighting control. As you can see, she receives quite a strong side-light from sunlight being bounced into the area by natural reflectors in the scene (in particularly a brick wall around 30 feet away). It produces a pleasant enough result that many people would be happy with.



Gold Reflector

2 We place a gold reflector to Hayley's left and the effect is instantly apparent. Her face receives warmth from the reflected gold light, which fills in shadows on the left side of her face. But the reflector is too close to her (the building's wall prevents us moving it further away) so its effect doesn't extend to her shoulders and arms.



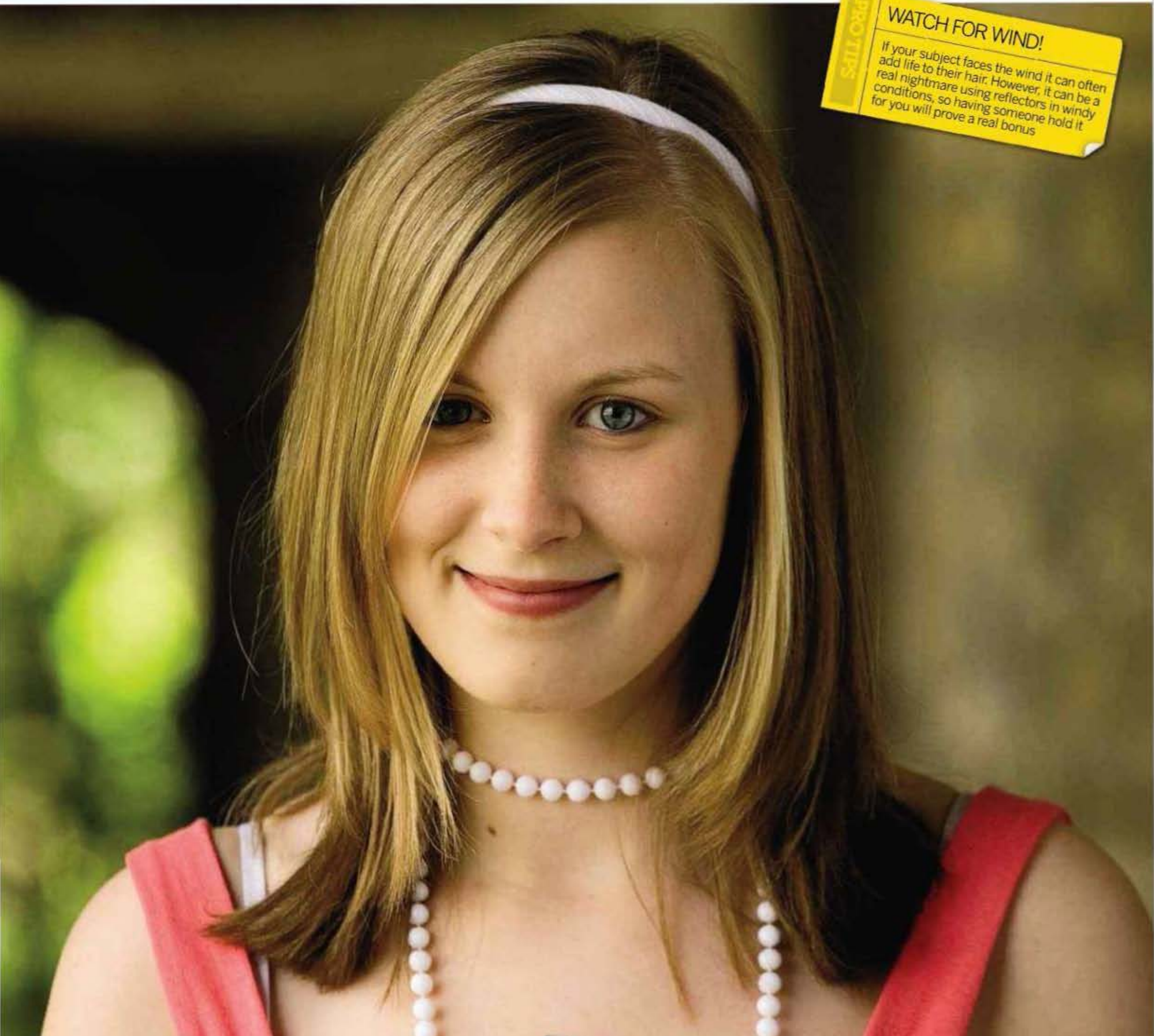
Silver Reflector

3 We swapped the gold reflector for a silver one and the result is better – the shadows are filled in and Hayley's skin tones look better without the gold effect. However, the tones on Hayley's face remain quite even, which doesn't reveal the shape of her face as much as we'd like to. It's time to swap the silver for the white...

PRO TIPS

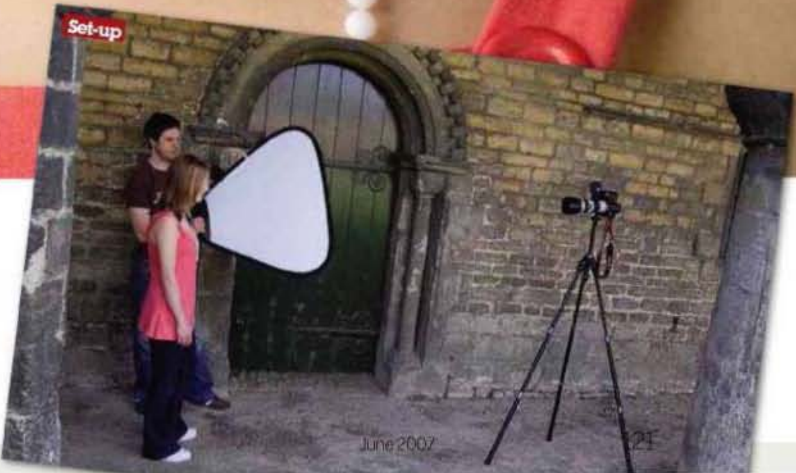
WATCH FOR WIND!

If your subject faces the wind it can often add life to their hair. However, it can be a real nightmare using reflectors in windy conditions, so having someone hold it for you will prove a real bonus



White Reflector

4 This yields the best results so far. The white reflector lacks the efficiency of the silver and gold, in other words it reflects less light. While this isn't always preferable, in this situation, with the reflector literally just out of frame, it's perfect. While the shadows have been filled in on the left side of Hayley's face, the brightness difference compared to the right side helps accentuate her contours and reveal her natural beauty.



Set-up

TAMRON AF 18-270mm f/3.5-6.3 Di II VC LD Aspherical (IF) Macro

TAMRON
18-270mm
Ø72 Di II
LOCK
VC
100 70 50 35
18

Quite simply, the versatility of the Tamron AF 18-270mm f/3.5-6.3 Di II VC Aspherical is unrivalled. It represents a technological breakthough – it is the world's first digital SLR lens that delivers a remarkable 15x zoom ratio. Designed exclusively for consumer digital SLR cameras with an APS-C size sensor, its 35mm equivalent focal length is an impressive 28-419mm. With such a highly useful, flexible focal range, it is suited to practically any subject – from wide-ranging vistas and towering architecture, to frame-filling telephoto wildlife images, sports and action. It is the perfect general purpose lens for everyday use.

SPECIFICATIONS

Construction: 18 elements in 13 groups
Maximum aperture: f/3.5-6.3
Minimum aperture: f/32
Minimum focus: 29cm
Maximum magnification: 1:3.5
Filter thread: 72mm
Angle of view. 75° 33' - 5° 55'
Diameter x length: 79.6x101mm
Weight: 560g
AF Fittings: Canon and Nikon
Supplied accessory: Lens hood

The Tamron's impressive zoom ratio allows photographers to quickly react to subject changes, without having to switch lenses. With a simple twist of the zoom ring, you can dramatically alter the look, feel and emphasis of the photo. Not only is this type of 'one lens does all' convenient, but it allows photographers to work quickly. By changing lens less frequently, you also limit the amount of dust and dirt that can enter the camera and settle on the sensor.

The 18-270mm zoom lens is equipped with Tamron's proprietary tri-axial Vibration Compensation (VC) mechanism. This is designed to eliminate – or substantially reduce – the effects of camera shake when shooting handheld. This is particularly useful in low light, or when shooting at large magnifications, when the likelihood of shake is far greater.

However, thanks to the lens' VC technology, photographers can confidently capture bitingly sharp images in almost any situation, ensuring you enjoy the full benefits of ultra-tele photography comfortably and deliver amazingly stabilised viewfinder images too.

The Tamron 18-270mm delivers outstanding image quality over its entire zoom range and also delivers high resolution and contrast performance. With a minimum focusing distance of just 0.49m – over its entire range – the lens boasts an impressive maximum reproduction ratio of 1:3.5 at its long end; meaning you can shoot eye catching close-ups too. Despite its range and magnification, it is just 101mm in length and lightweight. By being so compact, in addition to its versatility, it is the perfect companion when out taking photographs – whatever the subject.

Digital SLR accessories

Intro2020 is the UK's biggest distributor of photographic equipment

GORRILAPOD 'FOCUS'

Camera shake ruins photographs – plain and simple. Vibration Compensation (VC) technology and/or a tripod will eliminate the problem. However, not all lenses have image stabilisation, and it's not always practical or possible to use a tripod. So what is the solution? The Joby Gorrilapod Focus is the biggest, strongest Gorillapod to date. It is able to provide the stability of a standard tripod, but at a fraction of the size and weight. Its sturdy aluminum sockets, with anodised gunmetal finish, offer incredible flexibility while ensuring a solid hold in almost any environment. Despite its size, it can support an amazing 5kg. Its bendable, grippy legs can be positioned in an infinite number of ways – ideal for awkward or low viewpoints. No other type of camera support offers the same convenience and ease of use.

CAMERA BAG

Whether you have just one lens in your system, or several, a good quality camera bag is essential to house all your valuable kit and accessories. It allows you to transport your equipment safely, securely and comfortably. Crumpler bags are among the most stylish and well designed on the market. With a wide range of styles, sizes and designs, you will have no trouble finding the right bag for you. Tamrac are also renowned for innovative, high quality bags. Designed with the outdoor photographer in mind, Tamrac has built its reputation on quality and craftsmanship. They offer a diverse range of quality bags in order to meet your demands as a photographer.

LENSBABY

Lensbabies are selective focus digital SLR lenses, designed to promote creative and fun photography. They attach directly to your digital SLR body and work by bringing a selective area of the photograph into sharp focus. The rest of the frame is rendered attractively diffused – creating abstract and arty results. You can quickly adjust the area in focus to any part of the frame by bending its flexible lens tubing. There are several designs, including the 'Composer', 'Muse', and 'Control Freak', each handling differently. Lensbabies will certainly allow you to express your creativity in a very unusual way.

TAMRON®

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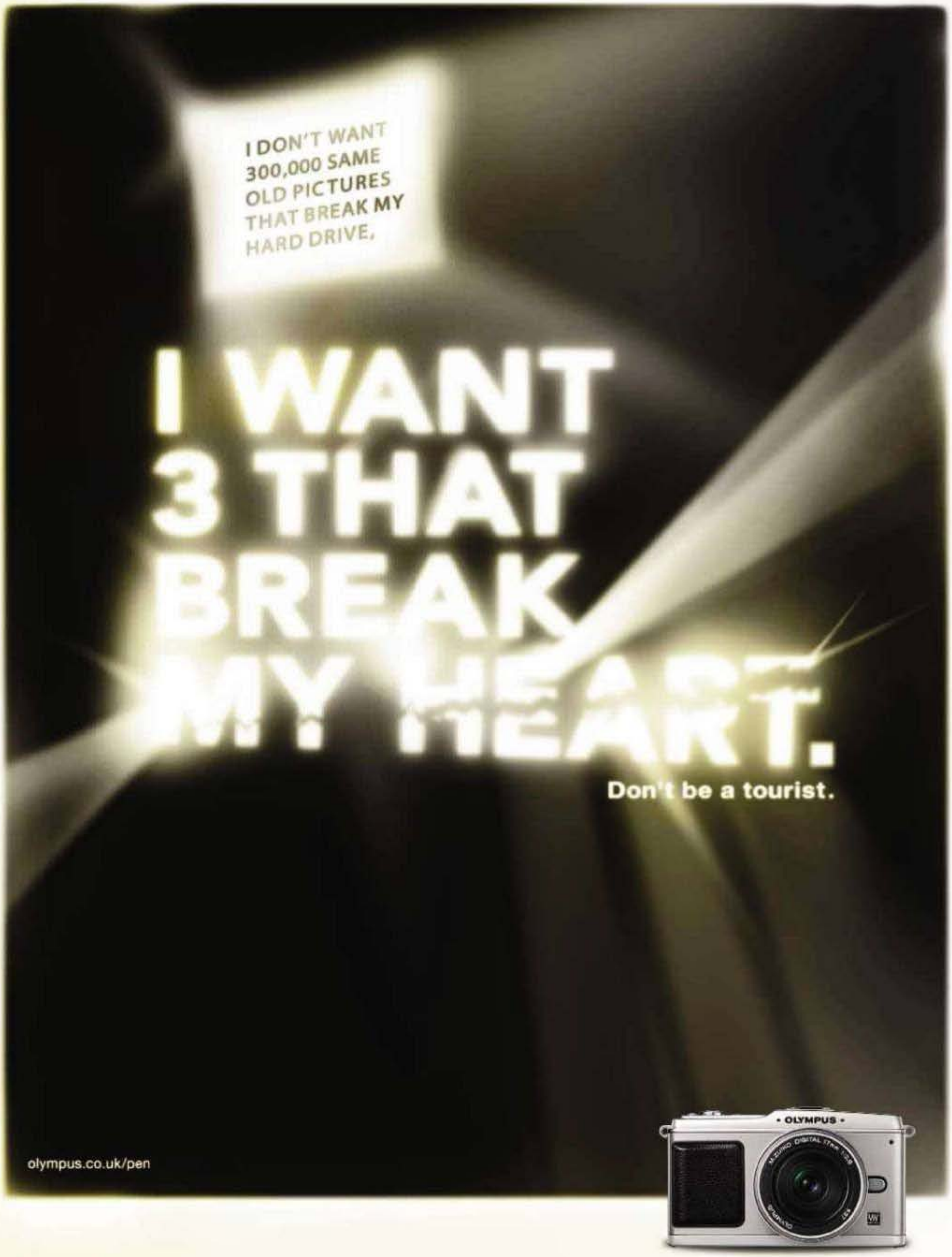
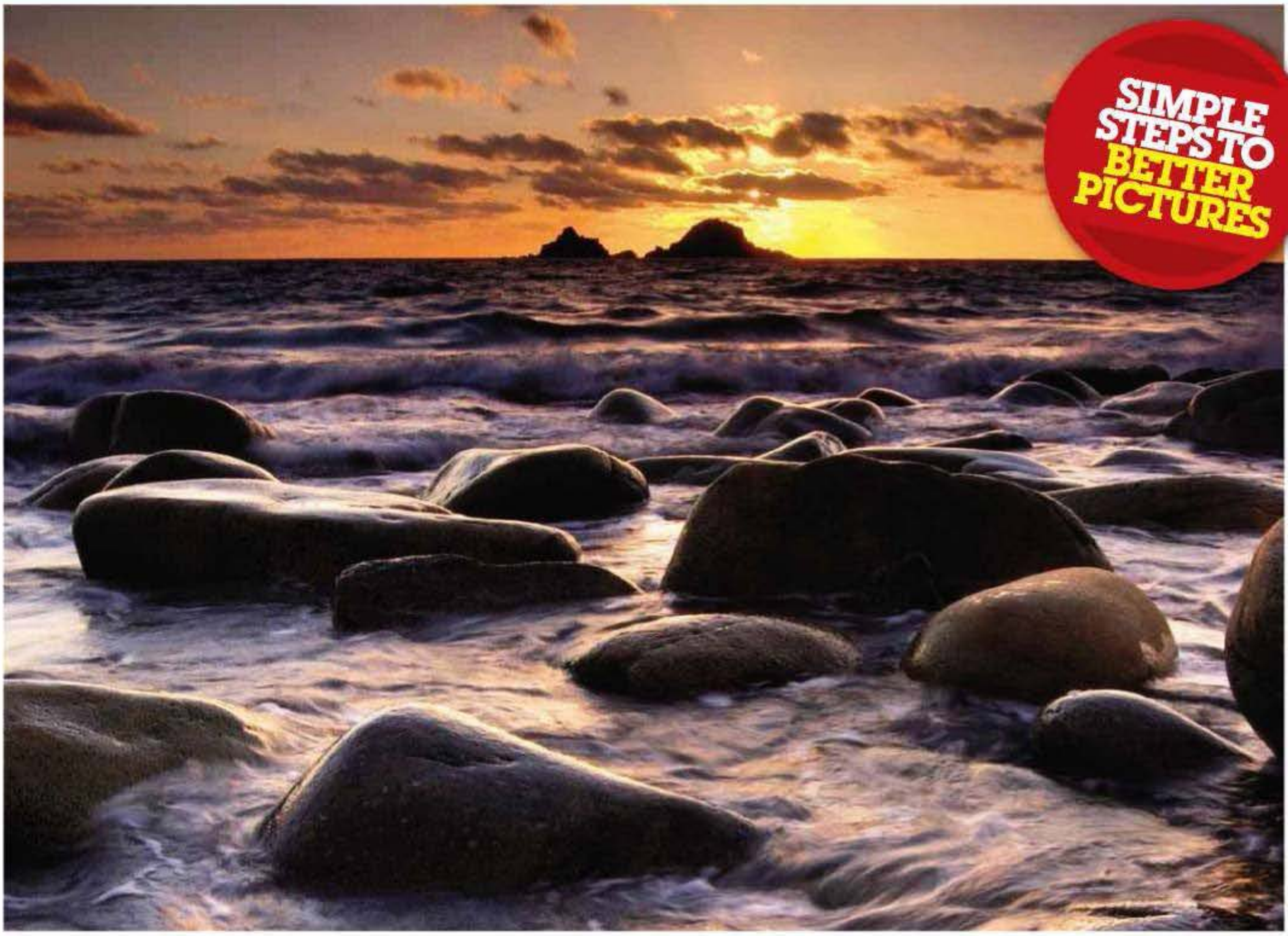

I DON'T WANT 300,000 SAME OLD PICTURES THAT BREAK MY HARD DRIVE,
I WANT 3 THAT BREAK MY HEART.
Don't be a tourist.
olympus.co.uk/pen
OLYMPUS

OLYMPUS

Olympus E-P1. Not an SLR.
Not a Compact. **It's a PEN.**



SIMPLE STEPS TO BETTER PICTURES

ESSENTIAL DSLR KIT

Expert advice on what gear to choose for your DSLR and how to get the best from it

An introduction to lenses

Your choice of lens is just as – if not more important – than your choice of body for influencing image quality. There are so many types and focal lengths available that we've tried to dispel any confusion by breaking the options down for you

EVERY LENS HAS a designated focal length and while there's a long and tedious scientific explanation for it, from a practical point of view, all you need know is that it refers to the field-of-view that the lens covers. To put it in context, our vision has an angle of view that relates most closely to a 43mm lens, although in photography the standard lens has been rounded up to 50mm. Anything that gives a wider field of view than a 50mm is termed a wide-angle, and a more narrow angle of view is termed a telephoto. But within the telephoto and wide-angle focal range are ever bigger extremes: the ultra wide-angle, fish-eye, superzoom and macro lens – each suiting different needs and styles of photographers. Over the next few pages, we aim to explain the differences and arm you with knowledge for the next time you shop!

Wide-angles

A long-time favourite with landscape photographers, the wide-angle lens allows you to fill the frame with a scene and use its vast depth-of-field capabilities to keep the foreground to the background in focus. While prime lenses like the 20mm, 24mm and 28mm were once favourite optics, the arrival of the highly-versatile ultra wide-angle zoom has seen fixed lenses fall off in popularity. For digital SLR photographers, the likes of the 10-22mm, 11-18mm and 12-24mm allow you to compose wide-angle scenes and capture high-quality results. Characteristics of these lenses include a wide field-of-view, exaggerated perspective with distortion of straight lines, and an incredible depth-of-field. Wide-angles allow you to include plenty of foreground interest in the frame too and are frequently used for architectural photography when trying to get a whole building at close range in frame, but also for interiors and reportage photography when distortion of facial features is favourable.

Telephoto zooms

These lenses, more commonly called telezooms, are one of the most versatile and make a great second lens to the standard zoom supplied with your DSLR. It's ideal for portrait photography, for shooting distant subjects such as wildlife, action or candids and can also be used to isolate small areas of a larger subject, such as architectural detail on a building, or in a landscape. Telezoom have stacks of potential so, if you don't own one, we'd suggest you seriously consider one.

Standard zooms

Don't neglect your standard zoom. The humble 18-55mm is ideal for subjects from landscapes to portraits and is a great lens to start learning with. It's fair to say, however, the kit lens supplied with the camera body aren't the of the highest quality. You'll find a number of f/2.8 lenses covering a similar range and as well as offering a faster maximum aperture, these incorporate higher quality optics. Another option is to go for a standard zoom covering a wider range, such as a 24-105mm. These lenses are also better quality and extend further into the telephoto end.

Superzooms

In recent years, superzooms offering a range of 10x and more have become increasingly popular. Film SLR users have had the choice of the 28-200mm and 28-300mm for a number of years, with the 18-200mm being released to tempt digital SLR users. All three types of superzooms can be used with digital SLRs, but we'd recommend you go for the 18-200mm, as the others have a limited wide-angle capability (effectively around 42mm) and at the telephoto end, you run the serious risk of camera shake.

The current generation of superzooms offers good image quality, but not to the same standard as you'd get using two separate zoom lenses to cover this range, although it has to be said that used with care, very good results are possible.

Shake reduction systems are now also appearing on superzooms, which makes them even more appealing. If you want to travel light then an 18-200mm is definitely a good buy, but if quality is your ultimate goal, you'd be better off using two zooms that cover this range, such as an 18-70mm and 70-200mm.

SIGMA
OPTICAL STABILIZER

Macro

If you're serious about close-up photography, you can't beat a specialist macro lens. Its close focus and high magnification ratio makes it ideal for shooting very small subjects. Popular macro lenses range from 60mm to 180mm, with 100mm being the most common focal length. As well as being great for close-ups, they are ideal for shooting portraiture too.

Keeping optics sparkling clean

Dust affects image quality, so clean your optics regularly. Lens cleaning accessories come in various forms. Perhaps the most useful is a microfibre lens cloth (around £3), which are washable and can be kept with you at all times. A LensPen (around £9) is also handy to have around, while a full cleaning kit at home ensures you can treat your optics to a thorough clean when you've five minutes spare. Always take care when cleaning, wiping lens optics is a delicate affair – ensure your cloth/pen/swab etc is free from grit. And never, ever wipe lenses with your shirt!

SIGMA DC
18-200mm 1:3.5-6.3
OPTICAL STABILIZER

How focal length is designated

The focal length is traditionally stated in 35mm terms, as the 35mm film format has long been the most popular, and it's a trend that is set to continue for quite a while yet. However, the arrival of digital SLRs with sensors that are smaller than a 35mm film frame has led to confusion about focal lengths, because a smaller sensor effectively crops the image and increases the focal length of a lens. This is confusing at first, but you'll soon get to grips with it. The most important thing you need to know is how much your sensor increases focal length by. You most likely have what's called an APS-C sensor in your DSLR, which results in an increase of 1.5x (1.6x on a Canon) of the effective focal length of the lens used with your DSLR. Use our reference guide below to see how much the focal length needs multiplying by. For example, if you have an 18-55mm zoom and the factor is 1.5x, the effective focal length will be 27-82mm.

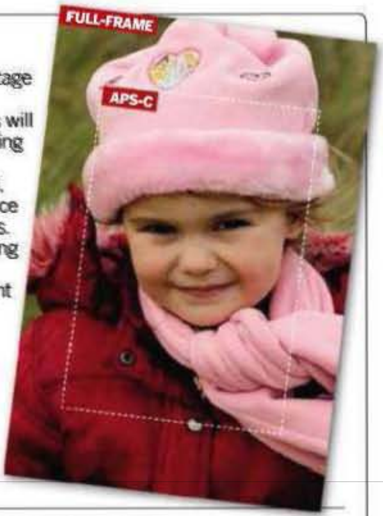
Effect of smaller sensors

The magnification of the smaller sensors provides an advantage for telephoto work, but isn't such hot news for wide-angle shooters. So while sports, wildlife and candid photographers will benefit from the extra pulling power, those who prefer shooting wide vistas will find that the magnification is a real pain.

However, wide-angle lovers shouldn't be too downhearted, as lenses offering much wider scope have been released since the days of film to help you capture wide-ranging landscapes.

In this guide, we cover the different types of lenses, pointing out the traditional favourites, but also informing you when there are better options. This should ensure you buy the right type of lens and avoid expensive mistakes.

What you need to remember is that because of the magnification factor, what might have been a good choice for the film SLR photographer, isn't always the best option for the DSLR photographer, which is a fact that some shop staff at non-specialist outlets we've encountered have failed to grasp. So use our guide, and visit specialist photo dealers, to ensure you get the best possible advice.



EFFECTIVE FOCAL LENGTH

The following chart shows how much the focal length of a lens is increased on various cameras

Camera brand/models	Multiplication factor
Canon	
10D, 20D, 30D, 40D, 50D, 300D, 350D, 400D, 450D, 500D	1.6x
EOS-1D series	1.3x
EOS 5D & EOS-1DS series	1x
Fujifilm	
S1, S2, S3 & S5 Pro	1.5x
Nikon	
D1, D2 series, D40/40x, D50, D70/s, D80, D90, D100, D200, D300/s, D3000, D5000	1.5x
D700 and D3 series	1x
Olympus & Panasonic	
All cameras	2x
Pentax	
All *ist and K-series model	1.5x
Samsung	
All GX series models	1.5x
Sigma	
SD9, SD10	1.7x
Sony	
Alpha 100, 200 & 300 series	1.5x
Alpha 850, 900	1x

MAGNIFICATION FACTOR

Use the multiplication factor to work out the effective focal length of a lens used on your SLR

Stated focal length	Magnification factor	Effective focal length
10-22mm	1.5x 1.6x	15-33mm 16-35mm
17-35mm	1.5x 1.6x	25-53mm 27-56mm
18-55mm	1.5x 1.6x	27-82mm 29-88mm
18-70mm	1.5x 1.6x	27-105mm 29-112mm
24-105mm	1.5x 1.6x	36-158mm 38-168mm
28-90mm	1.5x 1.6x	42-135mm 45-144mm
55-200mm	1.5x 1.6x	82-300mm 88-320mm
70-200mm	1.5x 1.6x	105-300mm 112-320mm
70-300mm	1.5x 1.6x	105-450mm 112-480mm
18-200mm	1.5x 1.6x	27-300mm 29-320mm
28-300mm	1.5x 1.6x	42-450mm 45-480mm

Lenses: Features to look for

If you're looking for a new lens, it's worth bearing in mind some of the benefits on offer...

IMAGE STABILISER Some SLRs have integral shake reduction systems but some don't, so a lens with an image stabiliser is useful when shooting handheld in low light or at long telephoto settings. Canon lenses state IS (Image Stabilisation, Nikon has VR (Vibration Reduction), Sigma has OS (Optical Stabilisation) and Tamron offers VC (Vibration Compensation).

'FAST' LENSES Lenses with a wider than standard aperture are referred to as 'fast' lenses as they allow more light in, meaning faster shutter speeds can be used. With zooms, a fast lens usually refers to a maximum aperture of f/2.8. These lenses are usually wider, heavier and more expensive than the standard type, but as well as being faster, they also offer superior optical quality.

INTERNAL FOCUS If you plan to use filters, in particular graduates, then a lens with an internal focusing system is the best choice, as the front of the lens won't rotate as the lens focuses.

LENS DESIGNATIONS Check the lens to see if it has APO or ASPH in its name. These stand for Apochromatic and Aspherical, which indicates the use of very high quality lens elements to improve overall optical quality.

FOCUSING MOTORS Some brands offer lenses with standard or superior focusing options, the latter offering faster, quieter AF. Examples includes Canon's USM (Ultrasonic Motor, Nikon's AF-S 'Silent Wave' and Sigma's HSM (HyperSonic Motor).

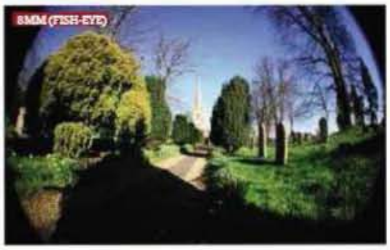
ULTRASONIC

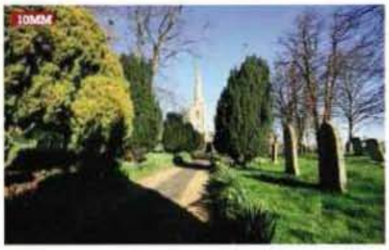
The effect of focal length on your images

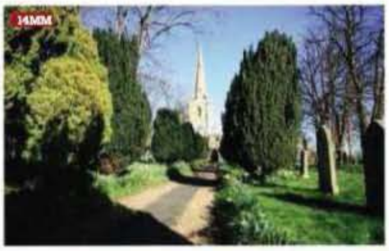
The focal length has a major effect on how the scene is captured, as shown by the set below, taken from the same position. We've stated the actual focal length of the lenses. They were used on a Canon EOS 400D, so multiply by 1.6x for the effective focal length.

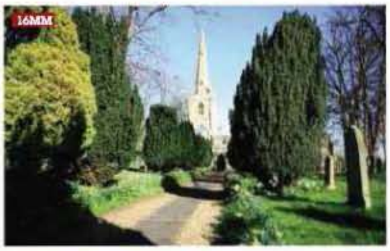
The angle of view

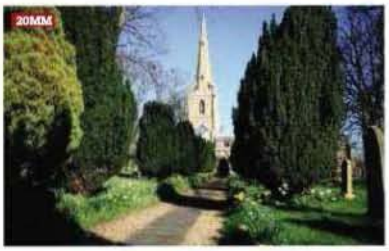
It's fairly obvious that adjusting focal lengths leads to a change in an image's angle of view. Wide-angle lenses provide a very wide field of view, and thus making subjects appear smaller in the frame, while, as you move up the telephoto scale, the field of view narrows and the subject starts to appear larger in the frame and more isolated from the surrounding scene. All images were taken from the same spot.

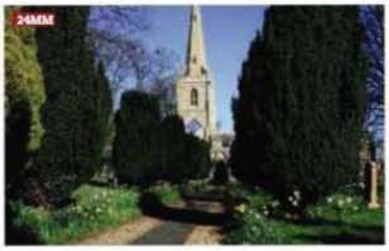

8MM (FISH-EYE)

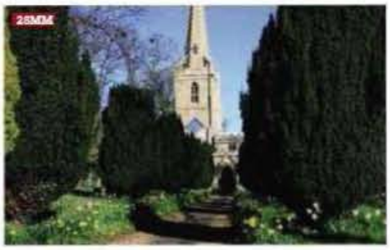


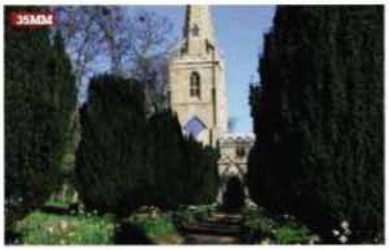


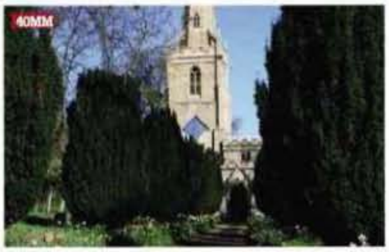


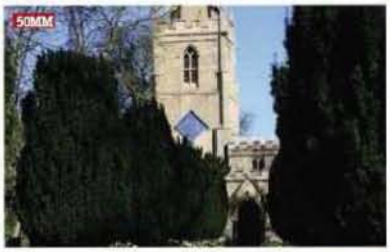


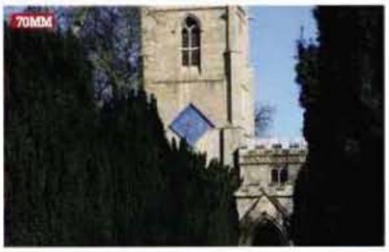


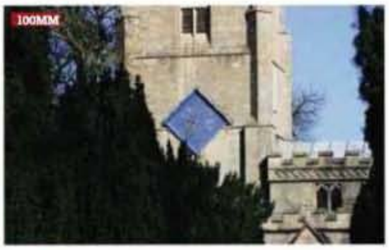


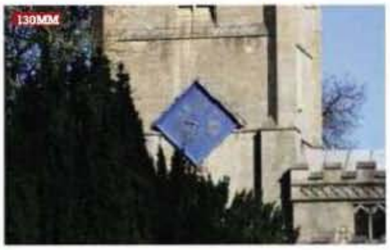


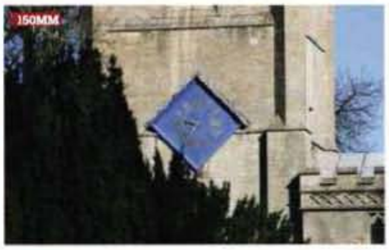


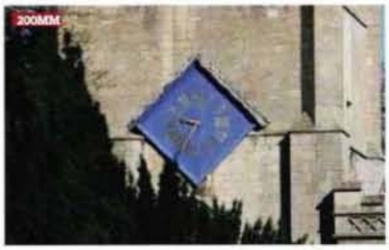


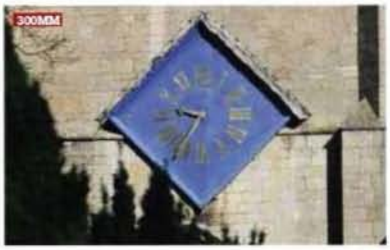


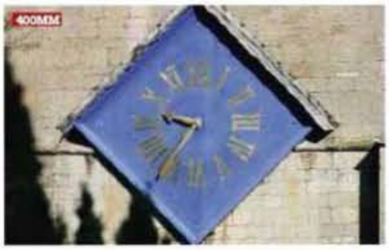








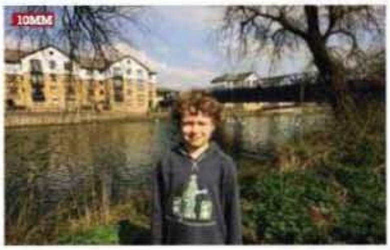


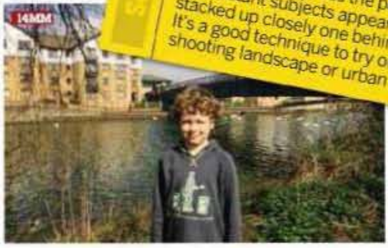


Perspective

What many photographers don't realise is your choice of lens can have a drastic effect on perspective. When shooting a subject, how you relate it to the background can be radically altered by the type of lens you use. Take an image with a wide-angle and you increase the depth of the scene and strengthen perspective. Use a telephoto and perspective is reduced and the scene is compressed so that it has far less depth.

To show changes in perspective, we shot a series of images at focal lengths from 10mm to 400mm, ensuring that the main subject appeared at a constant size in each image. This was achieved by adjusting the camera-to-subject distance – shooting from close-up with a wide-angle and moving further away as the telephoto setting increased. As you can see the difference in perspective is enormous – bear this in mind when placing subjects against a backdrop.

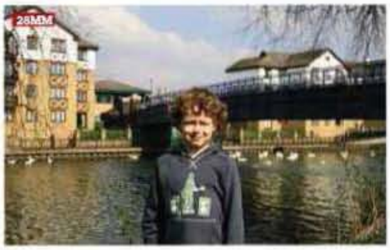


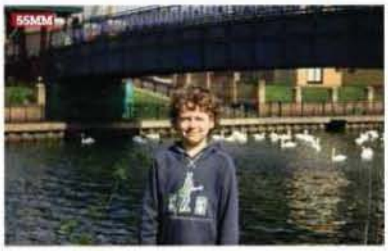


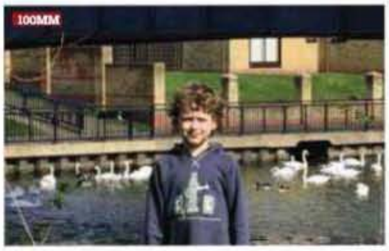
PRO TIPS

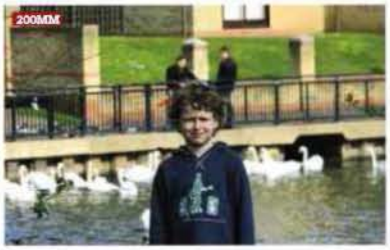
STACK 'EM UP

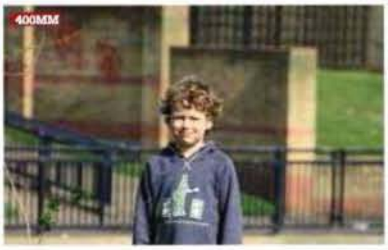
Telephotos compress the perspective so that distant subjects appear to be stacked up closely one behind the other. It's a good technique to try out when shooting landscape or urban scenes





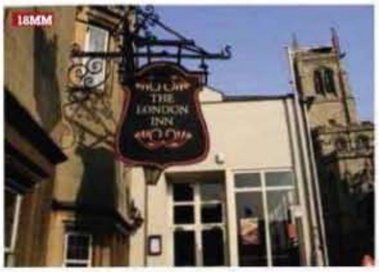


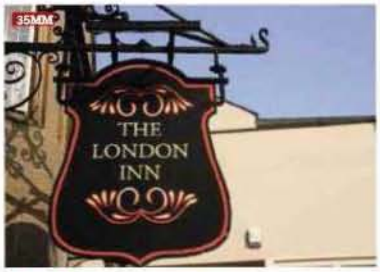


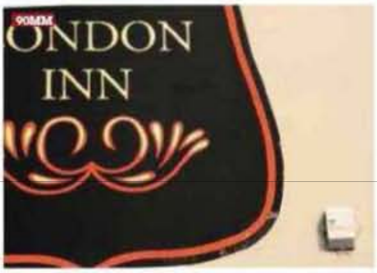


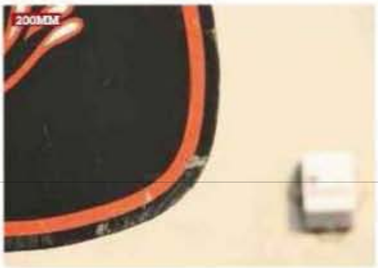
Depth-of-field

When you focus on a subject, an area in front and behind the focused point also appears sharp and this area is termed depth-of-field. The choice of aperture has a major effect on depth-of-field, with wide apertures providing a shallow depth-of-field and a small apertures allowing far more of the scene to be recorded in sharp focus. However, two other factors affect depth-of-field – the camera-to-subject distance and the focal length of the lens in use. As you'll discover when you use a variety of lenses, you get far more depth-of-field with wide-angles than with telephotos. So with an 18-200mm zoom set to f/8, the depth-of-field at 18mm far exceeds that at 200mm. Therefore, as well as considering how focal length affects perspective, you should also consider how you can use it to limit or increase depth-of-field. The shots below were all taken at f/8 from the same spot. Note how depth-of-field appears to reduce as you zoom in.









Lens problems

There are a number of problems to watch out for with lenses:

FLARE Stray light from the sun, or any bright light source, can result in flare, which can reduce image contrast and result in hotspots in the image. It's easily avoided by using a lens hood or shading the lens with your hand or a bit of card.

DISTORTION This is the phenomenon where straight lines appear curved in an image. Barrel distortion sees the lines curving outwards, while pin-cushion distortion is when they curve inwards. Barrel distortion is most prominent at the wide-angle end, while pin-cushion distortion can appear at telephoto settings. This problem particularly affects cheaper lenses and zooms with a wide range. Lenses boasting aspherical lens elements minimise problems with distortion. It can also be rectified to a lesser or greater extent using Photoshop.

CHROMATIC ABERRATION This technical term refers to how different wavelengths of light passing through a lens focus at various points. The result is usually a colour fringing; a thin but marked colour band that runs along the edge of image subjects. It is a lens problem that is controlled by the use of apochromatic lens elements.

Types of wide-angles

There are three main types of wide-angle lenses available, each offering their own pros and cons. Here we cover the virtues of each

Ultra wide-angle zooms

This group of lenses has become increasingly popular. That's no surprise as the range they cover offers incredible versatility in such a small and inexpensive lens. In fact, the ultra wide-angle zoom is arguably one of the best value lenses you could own. There are a variety of focal lengths available, with those around 11-22mm being the most suitable for DSLRs with an APS-C sized sensor. In truth, all cover a very similar range, although there are one or two exceptions to note. The Pentax 10-17mm fish-eye offers a 180° angle of view at its widest end, so in a sense you're getting a fish-eye and ultra-wide zoom rolled into one. It's also worth noting that unlike most ultra-wide zooms, the Sigma 12-24mm can be used on full-frame and APS-C SLRs. Finally, while the 16-35mm lens is popular with film and full-frame DSLR users, the 24-53mm range it covers with APS-C sensors is quite limited, so we'd suggest you avoid it.

Fixed wide-angles

Small, lightweight and compact, with high quality optics, these are very desirable lenses that are available in various focal lengths and have been designed to offer the ultimate in wide-angles for DSLR photographers. They start with the ultra wide-angle 14mm, which is particularly suited to architectural photography, when trying to fill the frame with a building from a short distance. Wide-angles from 20mm to 28mm are ideal for landscape photography and are also used by travel photographers. However, their use with DSLRs sporting an APS-C sensor is limited, especially as a standard kit lens covers this range.

Fish-eye lenses

The fish-eye offers the most extreme field of view. There are two types – the circular and the full-frame fish-eye, both producing very different results. Circular fish-eye lenses, when used on a full-frame DSLR, provide round images with a 180° angle of view. They distort perspective, especially when the subject is close, and with close-focusing capabilities, are perfect for comical portraits. The full-frame fish-eye (also known as a diagonal fish-eye) offers a 180° field of view and can capture incredibly wide vistas. They're very specialist, very expensive and have limited use, so hire one from a pro dealer before you buy.

Why use a wide-angle?

Ever wanted to photograph a subject or a scene and found that you can't fit it all in the frame? Then you need a wide-angle lens. With a field of view that extends far wider than the human eye, it's the perfect optic for capturing wide vistas or cramming large objects in the frame. Using such a lens comes at the price of characteristics like exaggerated perspective and distortion, but knowing what to expect and how to use it creatively allows you to take shots that aren't possible with any other type of lens.

Understanding focal lengths: Wide-angles

The focal length stated on a lens relates to SLRs using 35mm film and full-frame sensors. If your DSLR has an APS-C-sized sensor (most have), then you're effectively cropping the image and increasing the focal length of the lens. The chart below shows popular wide-angles and how the effective focal lengths changes when used with DSLRs.

Focal length on lens	DSLRs				
	Full-frame	APS-H	APS-C	APS-C (Canon)	Four-Thirds
	1x	1.3x	1.5x	1.6x	2x
8mm	8mm	10mm	12mm	13mm	16mm
14mm	14mm	18mm	21mm	22mm	28mm
15mm	15mm	19mm	22mm	23mm	30mm
20mm	20mm	26mm	30mm	32mm	40mm
24mm	24mm	31mm	36mm	38mm	48mm
28mm	28mm	36mm	42mm	45mm	56mm
10-17mm	10-17mm	13-22mm	15-25mm	16-27mm	20-34mm
10-20mm	10-20mm	13-26mm	15-30mm	16-32mm	20-40mm
10-22mm	10-22mm	13-29mm	15-33mm	16-35mm	20-44mm
11-18mm	11-18mm	14-23mm	16-27mm	18-29mm	22-36mm
12-24mm	12-24mm	16-31mm	18-36mm	19-38mm	24-48mm
16-35mm	16-35mm	21-45mm	24-53mm	26-56mm	32-70mm
17-35mm	17-35mm	22-45mm	25-53mm	27-56mm	34-70mm
17-40mm	17-40mm	22-52mm	25-60mm	27-56mm	34-80mm

Anatomy of a wide-angle zoom

1) Petal hood Ultra wide-angles come supplied with a dedicated hood to avoid vignetting and flare.

2) Large, concave front element The front element normally has a prominent curve, leaving it exposed to dust and scratches, so take care to keep it clean.

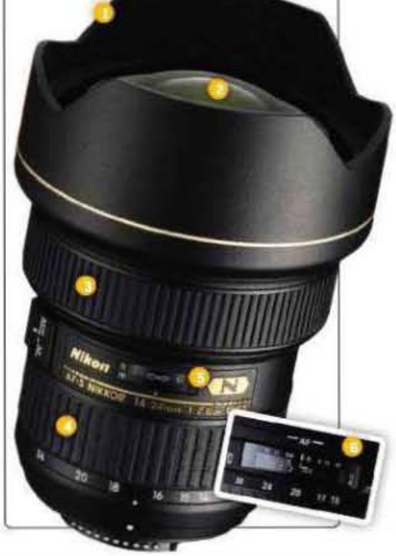
3) Manual focus ring Normally towards the front of the lens and reasonably wide. You'll rarely need to use it, as wide-angle lenses have excellent autofocus.

4) Zoom ring These are normally found towards the back of the barrel. Most are wide with a grooved surface to allow you to grip it easily.

5) Focus distance Many lenses have the focus distance scale marked on the barrel, while some of the more upmarket models have a focus distance window.

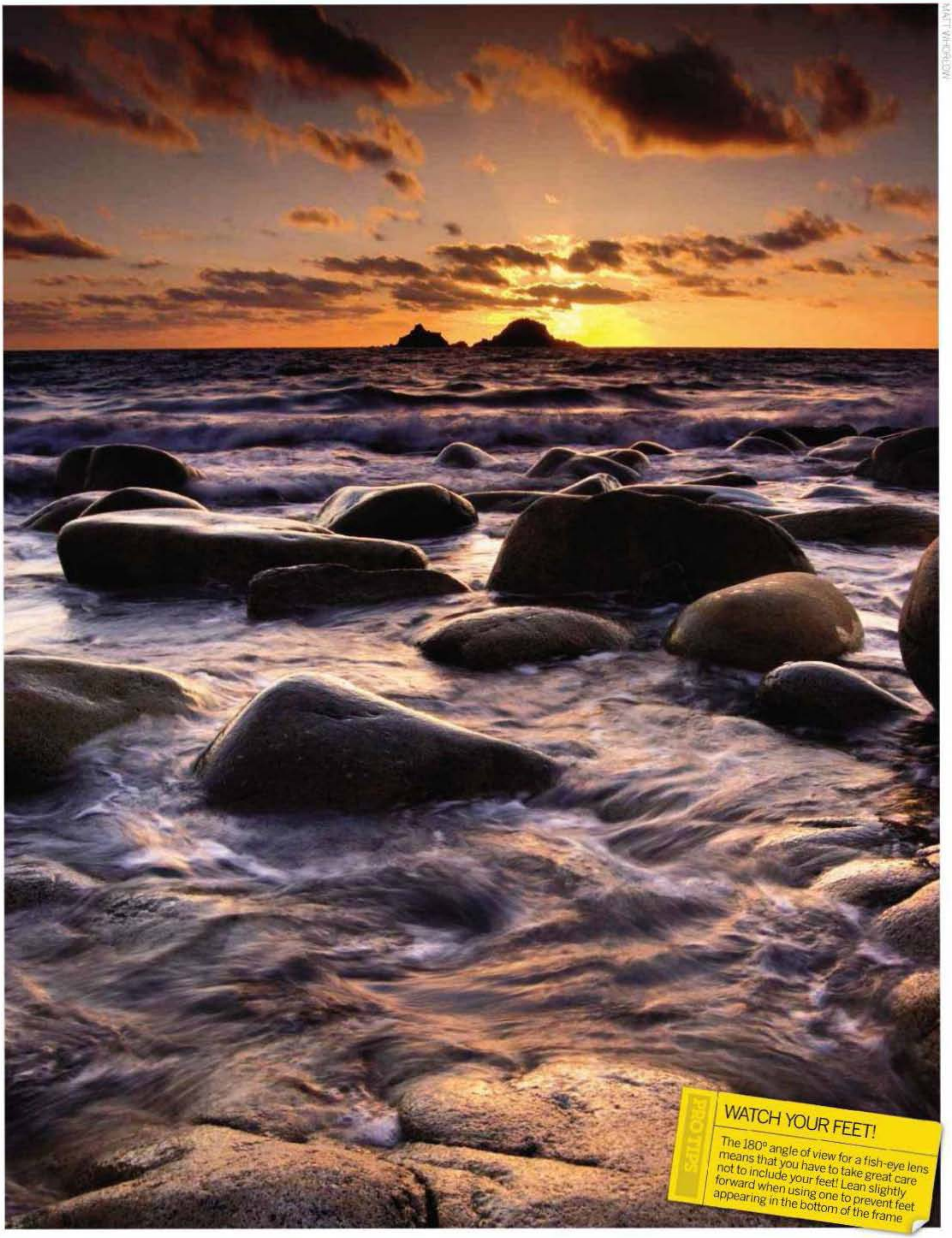
6) Hyperfocal scale (see inset) This scale allows you to estimate how much of the scene will appear sharp thanks to the choice of aperture.

7) Internal focusing system If you're planning to use filters, lenses with an internal focusing system offer the benefit that the front of the lens doesn't rotate when focusing, so you don't have to keep readjusting them.



Digital-only lenses

When you're choosing a lens, check to see if it's for use with film/full-frame, digital SLRs, or for DSLRs only. Those made for film and digital are usually more expensive; those designed for DSLRs are only optimised for digital. Therefore, if you're using a DSLR with the smaller APS-C sensor and never plan to buy a full-frame DSLR, go for a digital-only lens, such as the Canon EF-S range or Nikon's DX .



MATT WHORLOW

PRO TIPS

WATCH YOUR FEET!

The 180° angle of view for a fish-eye lens means that you have to take great care not to include your feet! Lean slightly forward when using one to prevent feet appearing in the bottom of the frame

Types of telephoto lenses

A telephoto lens is a wise investment and a good addition to your gadget bag. However, there are a number of different types of 'tele' available, each with their own advantages, drawbacks and of course, price tags!

Why use a telephoto/telezoom? Have you ever found yourself too far away from a subject to take a good, frame-filling picture? It is often frustrating, but the solution may be as simple as using a lens with a longer focal length. Telephoto lenses are designed to magnify distant subjects, bringing them within photographic range without the need for you to physically get closer to the subject. This is ideal in situations where it is impractical to get nearer the subject– for example, timid or dangerous wildlife or sporting events. However, while the effect can be considered similar to moving closer to the subject, it is not the same. Perspective and depth-of-field are altered through the use of long focal lengths, but providing you know how this will affect the scene or subject you are shooting, this can be used to your advantage.

VR
Nikon
DX
AF-S NIKKOR 55-200mm 1:4-5.6G ED
135 105 85 70 55

Short telezoom

A fixed lens simply can't match the versatility of a zoom. A short telezoom has a focal range of around 50-200mm. They are available in a variety of different ranges, for example 50-150mm, 55-200mm and 70-200mm. They allow you to choose from a wide variety of focal lengths at a fraction of the cost of buying individual 'primes' covering the same range. They allow for precise framing without the need to alter shooting position. However, a zoom's image quality isn't generally as high as a fixed lens and budget telezooms tend to be slow. Many have a variable maximum aperture (eg f/4-5.6) because the lens is a stop (or more) slower as the long end of the zoom's range. Although budget models tend to suffer from some lens aberrations, modern zooms offer increasingly good image quality and the best short telezooms are good enough for use by pros. Short telezooms are well suited to a wide variety of subjects, including candids, nature, scenics, action, and still-lifes. In fact, it is one of the most useful focal ranges available.

WHICH SHORT TELEZOOM? There is a huge amount of lenses to choose from in this zoom category. However, if you are on a limited budget, consider the Sigma 55-200mm f/4-5.6 DC or Tamron 55-200mm f/4-5.6Di II, as both excellent value at under £100.

ROSS HODDINOTT

Super-telezooms

For an even greater magnification try a super-telezooms; 70-300mm and 80-400mm are the most popular super-telezoom focal ranges, but they are available with an even more powerful range. For example, Sigma offer both a 170-500mm and 300-800mm telezoom. However, this degree of magnification is only required by a very small percentage of photographers – often those that shoot wildlife or sports. For the majority, a 70-300mm zoom will be more than adequate, as this is equal to a 105-450mm lens on a DSLR with an APS-C size sensor.

Super-telezooms are ideally suited to shooting birds and mammals and for taking frame-filling sports shots from distance. Do bear in mind that many super-telezooms have a relatively slow maximum aperture of f/5.6 at their longest end, which can be restrictive when shooting in low light. Also, be aware that autofocus can prove a little slow and noisy on budget models. However, when you consider you can buy a 70-300mm for as little as £130, a super-telezoom is a great investment if you want to try your hand at action photography.

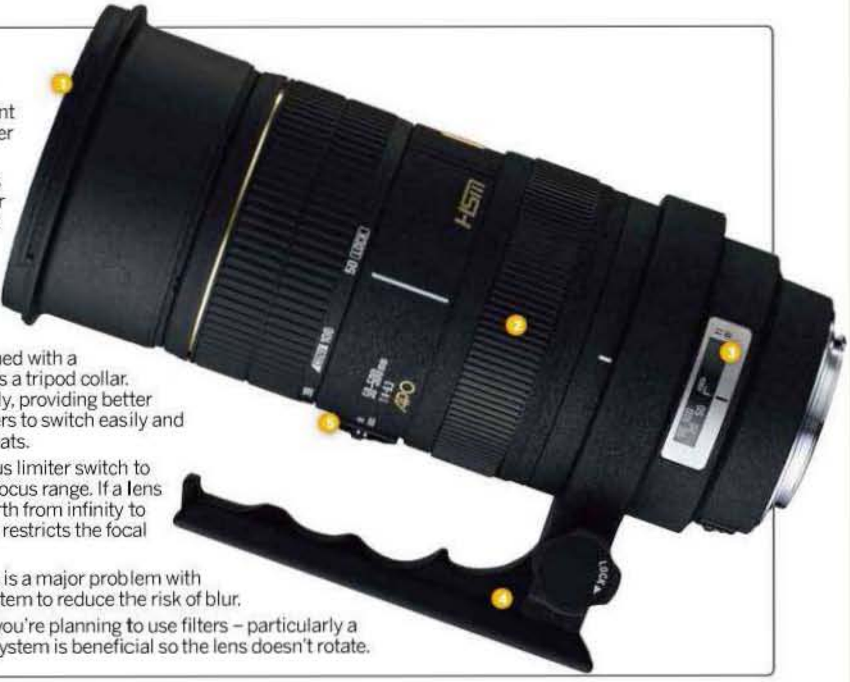
WHICH SUPER TELEZOOM? The Sigma 70-300mm f/4-5.6 APO macro DG is a good lens, with close-focusing ability and a reasonable price tag of £160. The Canon EF100-300mm f/4.5 USM costs around £229.

Fixed telephoto

A prime telephoto lens has a fixed focal length. While some might consider this a drawback, they are often favoured by professional photographers as they are optically superior to a zoom. They are available in two options: short and long telephoto. A lens under 200mm is considered as a 'short' telephoto and is normally light and compact, so can be used handheld. Also, most boast a small filter thread size, making it cheaper to buy attachments. Short telephotos in the region of 85mm to 135mm are ideal for portraiture, allowing photographers to work from a distance that isn't uncomfortably close to the sitter. This focal length is also suited to isolating details in scenics. A focal length upwards of 200mm is deemed a 'long' telephoto and are generally bigger and heavier, making the use of a tripod essential. Other than pro models, they also have a slower maximum aperture. While those with fast maximum apertures of f/2.8 or f/4 are best, they can cost thousands; so only pros and those with deep pockets can justify the price. Fast prime telephotos are bulky and heavy, but for wildlife and action photographers, their quality can't be surpassed.

WHICH PRIME LENS? For general day-to-day photography, a 200mm is a good, versatile focal length. Consider the Canon EF 200mm f/2.8 or Nikon 180mm f/2.8 D IF ED, both priced at just under £500.

Anatomy of a telephoto



1) FRONT ELEMENT Fast telephotos will have a large diameter front element and filter thread size. To prevent scratches and dirt, consider using a UV or Skylight filter for added protection.

2) MANUAL FOCUS RING These are normally towards the front of the lens and are quite wide and grooved for grip. It is well worth focusing manually when you want added precision.

3) FOCUS DISTANCE Many lenses have the focusing distance scale marked on the lens's barrel, while some of the higher-spec models have a focusing distance window.

4) TRIPOD COLLAR Many 'long' telephotos are designed with a mount that features a tripod bush at its base, known as a tripod collar. This allows the lens to be attached to the tripod directly, providing better balance and stability. Many are rotatable, allowing users to switch easily and quickly between horizontal and vertical shooting formats.

5) FOCUS LIMITER Some telephoto lenses have a focus limiter switch to prevent the lens from focus 'hunting across its entire focus range. If a lens is struggling to focus, it will 'hunt' – going back and forth from infinity to the minimum focus. To prevent this, the limiter switch restricts the focal range that the autofocus system will use.

6) IMAGE STABILISATION (*not shown*) Camera shake is a major problem with telezooms, so many boast an integral stabilisation system to reduce the risk of blur.

7) INTERNAL FOCUSING (IF) SYSTEM (*not shown*) If you're planning to use filters – particularly a polariser – a telephoto boasting an internal focusing system is beneficial so the lens doesn't rotate.

Understanding focal lengths: Telephotos

The focal length of a lens – referred to in mm – relates to a 35mm film SLR or digital SLR employing a full-frame image sensor. Therefore, if your DSLR has an APS-C sized sensor – as the majority do – then you are effectively cropping the image and increasing the focal length of the lens. Our table lists below the most popular telephotos and how the effective focal lengths change with different sensor sizes.

Focal length on lens	DSLRs				
	Full-frame	APS-H	APS-C	APS-C (Canon)	Four-Thirds
	1x	1.3x	1.5x	1.6x	2x
50mm	50mm	65mm	75mm	13mm	16mm
100mm	100mm	130mm	150mm	160mm	200mm
200mm	200mm	260mm	300mm	320mm	400mm
300mm	300mm	390mm	450mm	480mm	600mm
400mm	400mm	520mm	600mm	640mm	800mm
500mm	500mm	650mm	750mm	800mm	1000mm
55-200mm	55-200mm	72-260mm	83-300mm	88-320mm	110-400mm
70-300mm	70-300mm	91-390mm	105-450mm	112-480mm	140-600mm
100-300mm	100-300mm	130-390mm	150-450mm	160-320mm	200-600mm
80-400mm	80-400mm	104-520mm	120-600mm	128-640mm	160-800mm

Teleconverters

1.4X TELEPLUS PRO 300

A teleconverter is an optical component that fits between camera and lens and magnifies the focal length without altering the minimum focusing distance. They are most commonly made in 1.4x and 2x versions – although 1.7x and 3x versions are also produced. Therefore, a 200mm telephoto combined with a 1.4x converter would be equivalent to 280mm, while the same lens coupled with a 2x multiplier would be transformed into a 400mm lens. Converters are relatively inexpensive, light and compact, so are a convenient and economical way to expand the overall flexibility of your kit. However, there are disadvantages to using converters. Firstly, they reduce the amount of light entering the camera by one stop (1.4x) or two stops (2x) respectively. This can prove a problem in low light, when the risk of camera shake is enhanced, and also when photographing fast action, when subject blur is more likely due to the resulting slower shutter speed. The other drawback of attaching one is that image quality is slightly degraded, with zoom lenses being worse affected than fixed focal lengths. Generally speaking though, the benefits of using one outweigh the disadvantages. For best quality, opt for one with more elements in the construction. Nikon, Canon and Sigma are among the camera manufacturers who boast converters within their range, but don't overlook third party brands either, like Tokina, Tamron and Kenko. Due to their design, some optics are incompatible with teleconverters, so check your lens instruction manual or ask before buying.

Prime or telezoom lens?

It is the age-old question – why buy a fixed lens, with only one focal length, when a zoom is much more versatile? Here we have listed the 'pros and cons' to both lens types to help you decide which suits your photography best.

PRIME TELEPHOTO LENS:

✓ Simpler optical design means sharper results with better contrast

✓ More robust, compact construction

✓ The faster maximum aperture provides a brighter viewfinder and better low-light capabilities

✓ Will often boast a closer focusing distance than a zoom

✗ Restricted to just the one focal length

✗ Cost – prime lenses are typically more expensive than zoom lenses

TELEZOOM LENS

✓ Covers a range of focal lengths, so provides greater versatility

✓ Replaces the need to carry several different fixed lenses, meaning that there is less for you to lug about

✓ Lots of flexibility at a very good price

✓ Not as good optically as a fixed lens, particularly towards the edges of the frame

✗ Maximum aperture slower than a fixed lens

✗ Paradoxically, zooms can offer too much choice – complicating framing and composition

Oh deer.
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Equipment for close-ups

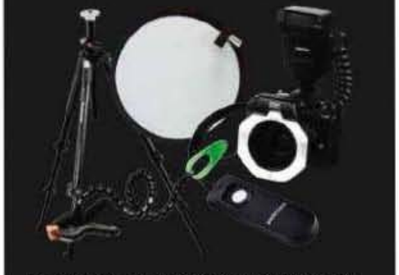
Many standard zooms boast a useful reproduction ratio of around 1:4 – quarter life-size. This is ideal to get you started, but if you want to get even nearer to your subjects, you may need to invest in a close-up attachment or dedicated macro lens. Here, we look at the most popular and widely used options and cover the merits of each

Macro photography opens up the possibility for you to capture stunning images of small subjects.

Useful close-up accessories

TRIPOD At high magnification, the effect of camera movement is exaggerated. A tripod is the best form of support. A flexible design is best suited to shooting close-ups as it lets you get low.

REFLECTOR Small, collapsible reflectors can be angled to bounce light accurately onto your subject. The intensity of the light can be adjusted by moving the reflector closer or further away.



PLAMP The Plamp is an articulated arm with a clamp fixed at either end. One end can be attached to a tripod leg, while the other can be used to hold a reflector.

RING-FLASH A ring-flash is designed specifically for close-up work. It attaches directly to the front of the lens, so the burst can illuminate close-up subjects. Twin flash units work in a similar way.

REMOTE RELEASE Depressing the shutter release button while using at high magnification, and a slow shutter speed, can cause slight camera vibration. A remote release allows you to trigger the shutter without any fear of camera shake.

HOYA PRO1 D CLOSE-UP

Close-up filters

Close-up filters screw to the filter thread of your lens and work like a magnifying glass. Depending on the brand and size, they can cost as little as £10! They are normally of a single element construction and available in progressive strengths, stated in dioptres. +1, +2, +3 and +4 are the most popular, although a two-element +10 dioptre is also available. The higher the number, the nearer the lens can focus and the higher the magnification. Although they can be used in combination, image quality will degrade if you attach more than two at one time. Close-up filters do not affect normal camera functions, so are easy to use and well suited to giving beginners a taste of close-up photography. Despite their modest price, they can produce excellent results and being so small and lightweight can easily be used handheld without affecting stability.

KENKO
EXTENSION TUBE

Extension tube

Extension tubes are hollow rings that fit between the camera and lens. They work by increasing the distance between the sensor and lens, allowing the camera to focus closer than normal and increase magnification. They lack any optics and so do not affect the image quality of the lens they're coupled with, making the image quality superior to close-up filters. They can be purchased individually or in a set of three lengths: 12mm, 25mm and 36mm. Their level of magnification is calculated by dividing the amount of extension by the focal length of the lens being used. For example, 25mm of extension used with a 50mm standard lens results in a 1:2 reproduction – or half life-size. To achieve 1:1 life-size, the extension would need to equal the focal length of the lens attached. Therefore, they are most effective when combined with relatively short focal lengths.

Macro lens

A macro lens is optimised for close focusing. While they are highly corrected to give their best results at close range, they can also be for general use and are popular among portrait photographers. At its minimum focusing distance, a dedicated macro lens will normally produce 1:1 reproduction. They are available in a range of focal length: short macro lenses, in the region of 50mm to 70mm, are lightweight and compact, making them easy to use handheld. However, at their maximum magnification, they don't have a generous working distance. Therefore, this focal length is not the best if you wish to photograph subjects which are easily disturbed, such as butterflies. Generally speaking, focal lengths upwards of 90mm are a better choice. They provide a greater subject-to-camera distance and make it easier to isolate your subject.

Introduction to flash

Using flash isn't as difficult as you might think. It's just a matter of knowing what to do, when to do it and how

WE'VE ALL BEEN disappointed when using a flash has failed to capture the ambience of a scene. This usually happens when we shoot in auto mode with no real thought as to what we are doing or why. What we hope you'll discover in this section of the guide is that the secret to good flash photography lies in using the full range of your camera's exposure modes, and thinking carefully about how light from the flash – and from other sources – affects the final result.

The result of a flash-lit picture will change depending on whether you are using aperture-priority or program exposure mode, or whether you have auto or slow-sync flash set, for example. This is because, by changing modes, you are altering settings such as shutter speed, which in turn affects the amount of ambient light that reaches the sensor. Additionally, flash modes can command the flash to fire at the beginning or end of the exposure. Either option changes how moving objects will appear in the final photograph.

While all this may seem complicated, it isn't. The beauty of digital SLR photography is that you are free to experiment (and learn from your mistakes), and we recommend you do this while following our advice. Take inspiration, try it out yourself, and adapt it with your own ideas. Before long you'll be using flash as an everyday part of your photography – rather than being afraid of it – no matter what your subject matter.

Common flash modes you'll find on DSLRs

The way your DSLR and flash work together is governed by the flash mode that you use. Here are the most common flash modes that you'll find on your digital SLR and dedicated hotshoe-mounted flashguns.

- AUTO ⚡ **Auto** When light levels fall, your DSLR will activate the built-in flash. It calculates aperture via TTL metering, but sets a high shutter speed to avoid camera shake. Convenient, but not very creative.
- SLOW-SYNC **Slow-sync** It uses a slower shutter speed to record ambient light properly. Good for night-time portraits where the mood needs to be recorded too, but watch for camera shake.
- REAR **Rear/second-curtain sync** Works the same as slow-sync mode, except that the flash is fired at the end of the exposure, rather than at the start. Great for leaving a trail of light behind moving subjects.
- **Anti red-eye** Aims to prevent or reduce so-called red-eye in flash portraits by using a series of pre-flashes to make a subject's pupil narrow before the exposure is taken.
- **Flash-off** Stops a camera from automatically engaging the built-in flash. More useful than you'd think, especially when trying to shoot low-light scenes on a tripod.
- **Flash exposure compensation** Your DSLR automatically calculates the amount of flash needed for an exposure. Use this feature to increase or decrease the amount of flash output to your liking.

Jargon buster

» **GUIDE NUMBER** A numerical measure of a flashgun's power. The higher the number, the greater the power. In manual flash mode, divide the Guide Number by the camera-to-subject distance in meters to calculate the required aperture for a decent exposure.

» **HIGH-SPEED FLASH** The ability to use your flash at faster shutter speeds than the camera's standard sync speed. Very useful when trying to work with fill-in flash outdoors in sunny, high-contrast conditions.

» **PAINTING WITH FLASH** The practice of locking open your camera's shutter on a long exposure, and then firing an off-camera flash at your subject multiple times from different angles.

» **TTL** Through the lens metering, known as TTL, is the way in which a flashgun and camera work together to properly expose a scene. The camera measures flashgun output coming through the lens and tells it when to stop.

» **WIRELESS FLASH** Firing an external flashgun without cables, using an infrared transmitter or integral flash instead. This can be very useful when you're skilled enough to use multiple-flash set-ups.

» **FLASH COVERAGE** This refers to the area covered by the flashgun's output. You'll normally find focal lengths up to 18mm provides an even flash coverage, wider than this and the corners/edges start to darken off. It's worth checking what your flash coverage is if you often shoot group portraits indoors. Some hotshoe-mounted flashguns boast a built-in diffuser panel that widens coverage.

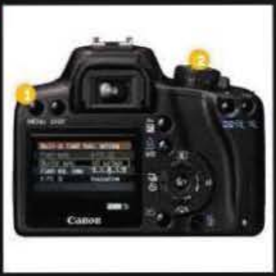
How to select flash modes on DSLRs

You'll find your camera allows you to select a variety of flash modes for the built-in flash unit. Some cameras also allow you to control the functions of a hotshoe-mounted flashgun too

CANON EOS 1000D

1) Press MENU and scroll to the first tab for red-eye reduction. Go to the second tab to use flash exposure compensation. The fifth tab has a Flash Control setting with a variety of options including first and second-curtain sync. Custom Functions (sixth tab) has other options

2) To deactivate the flash, set the mode dial to Flash-off



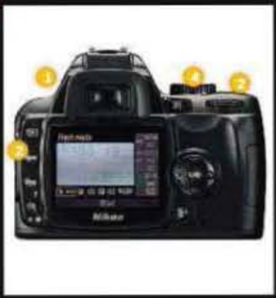
NIKON D60

1) Press and hold the flash button and turn the input dial to change flash modes

2) To set flash exposure compensation, press and hold both the flash and exposure compensation buttons and turn the input dial

3) Press MENU, and go to the third tab for Custom Functions and more flash options

4) To deactivate the flash, set the mode dial to Flash-off

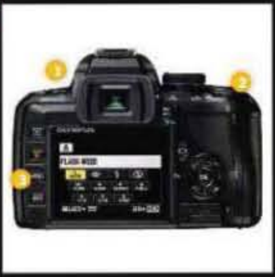


OLYMPUS E-420

(1) Press the flash button to pop up the flash and press again to bring up the flash modes on the LCD monitor

2) Rotate the thumb dial to choose a flash mode and press OK to set it

3) Press MENU and go to the fourth tab for Custom Functions, which has a couple more flash options

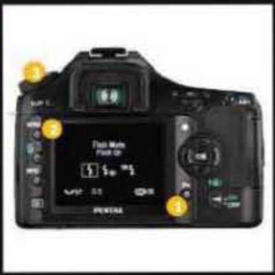


PENTAX K200D

1) Press the Fn button and then the down button of the four-way control to select flash modes. Use the left/right of the four-way control to select flash modes or the thumb dial to set flash exposure compensation

2) Press MENU and go to the Custom Settings (fourth tab) for other flash options

3) To deactivate the flash, set the mode dial to Flash-off

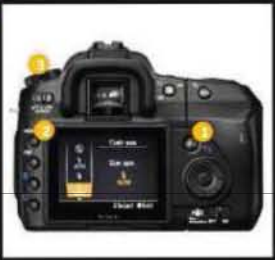


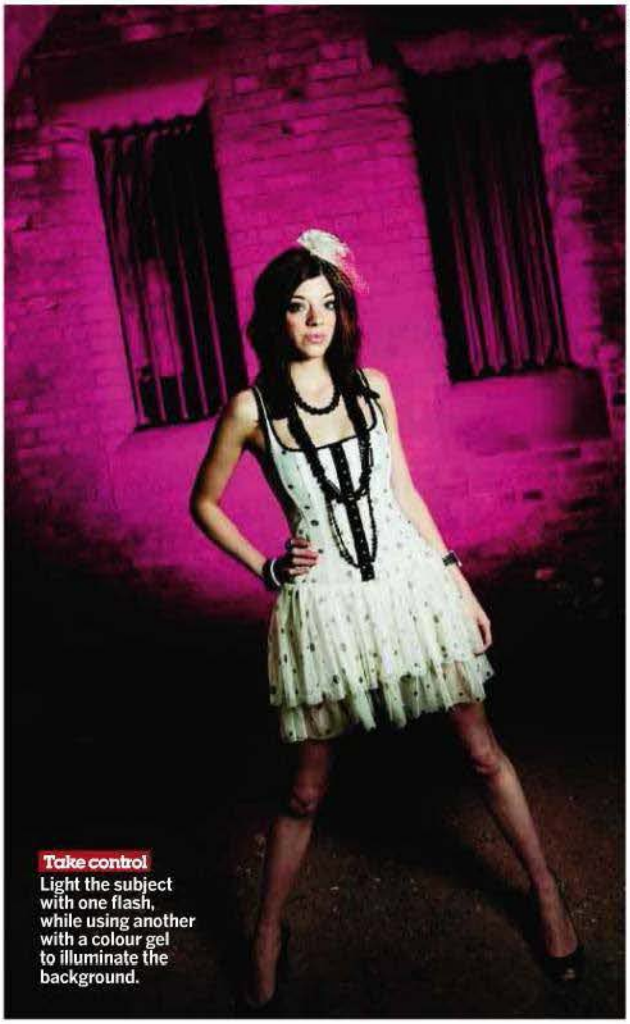
SONY ALPHA 200

1) Press the Fn button and select the Flash mode box for access to various options

2) Press MENU and go to the first tab for other flash options including flash exposure compensation

3) To deactivate the flash, set the mode dial to Flash-off

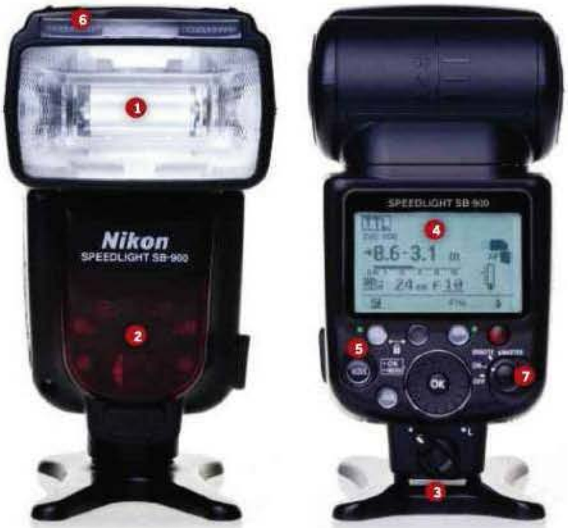




Take control
Light the subject with one flash, while using another with a colour gel to illuminate the background.

BRETT HARKNESS

Anatomy of a flashgun



1) FLASH HEAD Can be rotated or flipped to bounce light off walls and ceilings. Most zoom to match light coverage to the lens in use.
2) AF ASSIST Projects an infrared beam to help focus in dim light.
3) HOTSHOE The connection between camera and flash. Used to trigger the flash and communicate data for TTL light metering.
4) LCD SCREEN Shows the status of the flashgun. In this case the metering mode, range, zoom setting and f/stop are all visible. Here, we can see that the unit is set to TTL exposure mode for an aperture of f/10 and a 24mm lens, giving a range of between 0.6 to 3.1m.
5) BUTTONS AND CONTROL WHEEL Used to set advanced features, like flash exposure control, metering mode etc.
6) FOLD-AWAY REFLECTOR AND DIFFUSER The reflector can be used with the gun in bounce mode to direct a small amount of light towards the subject. The diffuser is used to disperse light over a wider area when shooting with ultra wide-angle lenses.
7) POWER AND MODE SWITCH Turns on power to the flashgun and, in this case, dictates how the unit behaves when used off-camera in wireless TTL mode.

Exposure modes and flash

How exposure modes and overrides affect flash for different brands of DSLRs*

BRAND	CANON	NIKON	PENTAX	OLYMPUS	SONY
PROGRAM MODE	Camera sets shutter speed and aperture, but raises shutter speed to avoid camera shake. Background may be dark.	Camera sets exposure, but raises shutter speed to avoid camera shake, unless slow-sync mode is set. Background may be dark.	Camera sets exposure, but raises shutter speed to avoid camera shake, unless slow-sync mode is set. Background may be dark.	Camera sets exposure, but raises shutter speed to avoid camera shake, unless slow-sync mode is set. Background may be dark.	Camera sets exposure, but raises shutter speed to avoid camera shake, unless slow-sync mode is set. Background may be dark.
APERTURE-PRIORITY	User picks aperture; camera calculates flash exposure accordingly. Shutter speed is picked to render ambient light correctly. Be aware of camera shake.	User picks the aperture and the camera selects flash exposure accordingly. Shutter speed is limited to prevent camera shake, unless slow-sync mode is selected.	User sets aperture and camera sets shutter speed to correctly expose background, up to the maximum sync speed. Risk of camera shake in low light.	User picks aperture and camera selects flash exposure accordingly. Shutter speed limited to prevent camera shake, unless slow-sync mode is also selected.	User picks aperture and camera selects flash exposure accordingly. Shutter speed limited to prevent camera shake, unless slow-sync mode is also selected.
SHUTTER-PRIORITY	User picks shutter speed and camera picks corresponding aperture for ambient light, then calculates flash output according to this aperture.	User picks shutter speed and camera picks corresponding aperture to expose ambient light correctly, then calculates flash output according to this aperture.	User picks shutter speed and camera picks corresponding aperture to expose ambient light properly, then calculates flash output according to this aperture.	User picks shutter speed and camera picks corresponding aperture to expose ambient light correctly, then calculates flash output according to this aperture.	User picks shutter speed and camera picks corresponding aperture to expose ambient light correctly, then calculates flash output according to this aperture.
EXPOSURE COMPENSATION	Affects ambient light exposure only.	Affects both ambient and flash exposure.	Affects both ambient and flash exposure.	Affects ambient light exposure only.	Affects both ambient and flash exposure.
FLASH EXPOSURE COMPENSATION	Affects flash exposure only.	Affects flash exposure only.	Affects flash exposure only.	Affects flash exposure only.	Affects flash exposure only.

* Please note that the stated information relates to most general shooting conditions. However, in certain situations, the camera and flash will operate differently.

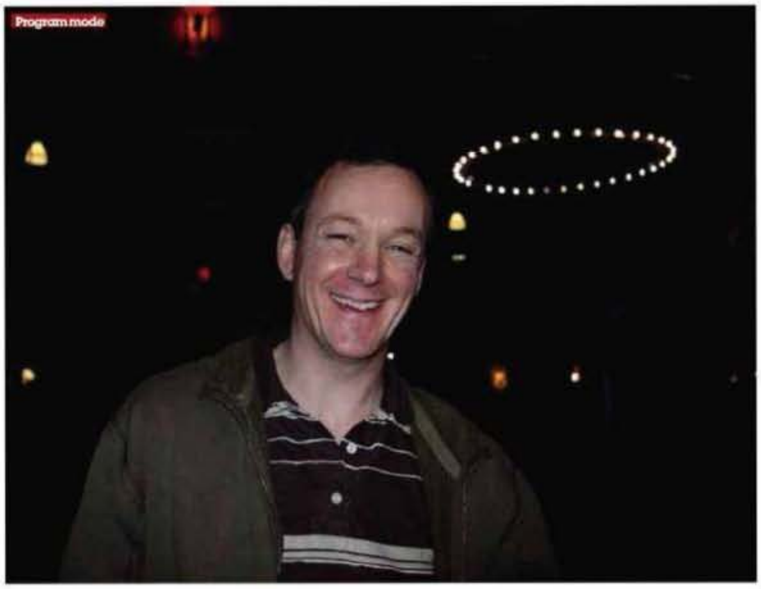
Taking your first steps with controlling flash exposures

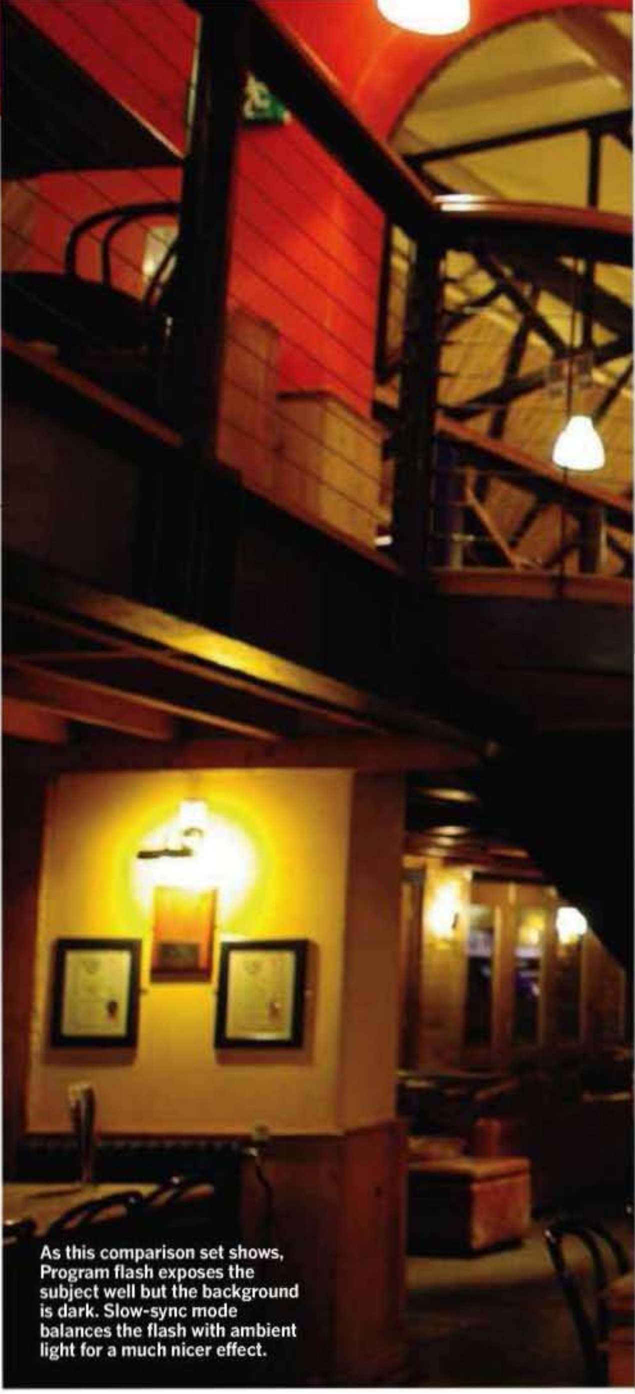
As mentioned earlier, often the best way to use flash is to balance the flash exposure with ambient light. That way, the flash ensures the subject is well lit, while the background is exposed by ambient light. The way to do this is simple – expose for the scene as normal, but pop up the integral flash (or attach a flashgun) and let the camera handle the flash exposure. This method is often termed slow-sync flash.

Slow-Sync Flash

LOOK FOR... SLOW-SYNC

This mode involves using flash with a shutter speed/aperture combination that correctly exposes the general scene. The flash takes care of the main subject and the longer exposure time allows ambient light to reveal background detail. How you set slow-sync mode depends on the DSLR you use. With Canon, use aperture-priority (Av), with Pentax select shutter-priority (Tv); with Nikon and Olympus, press the flash mode button, select slow-sync and use it with aperture-priority (A) or shutter-priority (S). You'll find many DSLRs employ slow-sync when you set Night-Portrait mode. The slow shutter speed means a tripod (or other support) is recommended.





As this comparison set shows, Program flash exposes the subject well but the background is dark. Slow-sync mode balances the flash with ambient light for a much nicer effect.

How to deal with red-eye

Bounce flash is also a very effective way of getting rid of red-eye – the nasty looking effect where a subject's pupils appear red when they are photographed with direct flash in dark conditions. This can be a huge problem if the majority of your images are people shots taken at night. Red-eye only occurs when the flash is very near the lens axis, which is why you see it so much in photographs taken with a DSLR's pop-up flash. Some cameras have a built-in red-eye reduction that fires a beam or pulses of light to help shrink the pupils. The easiest way to avoid red-eye is to fit a flashgun to the hotshoe as the extra distance of the flash head from the lens almost always cures the problem. If it still persists, bounce the head to eliminate it. Some DSLRs also have a red-eye removal option in its menu system, or you can remove it in Photoshop.

Built-in flash

Direct flash

PRO TIPS

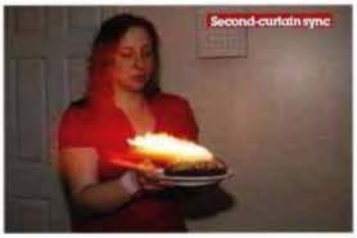
DON'T MOVE!

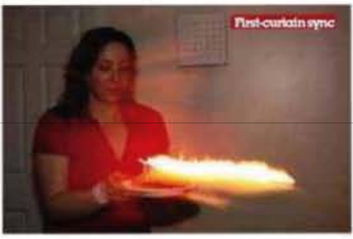
With slow-sync flash photography, you need to ensure that your main subject does not move during the flash exposure, otherwise it's likely that they will be recorded as a ghostly blur

Rear-Curtain Sync

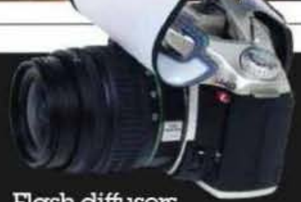
LOOK FOR...
REAR

Rear-curtain sync is also known as second-curtain synchronisation and it's well worth noting what it does. Normally, when you take a shot using flash, the flashgun fires right at the start of the exposure (known as first-curtain sync) and this is fine for most uses. However, if you're shooting a moving subject, especially with a slow shutter speed, you'll find that first-curtain sync isn't always the best choice. That is because the flash freezes the subject at the start of the exposure and their movement after the flash has fired may be recorded by ambient light as an unusual streak ahead of their starting position. However, by using rear-curtain sync, this streak is behind the subject, which appears far more natural.





The difference between first- and second-curtain synchronisation is most obvious looking at the light trails of the candles.



Flash diffusers

There are a number of diffusers available for use with your integral or hotshoe-mounted flashgun. These are placed in front of the flash head and helps provide a softer light output. Your local retailer can advise you of what's available, but shown here is the LumiQuest Soft Screen for integral flash units. We'd also recommend LumiQuest's soft boxes and, for hotshoe-mounted flash, the Sto-fen Omni-bounce diffuser, which is great for group portraits indoors.

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How to use bounce flash

THE MAIN PROBLEM with using your camera's built-in flash (apart from its relatively low power) is that it fires its output directly at the subject, so you are always going to get a portrait illuminated by relatively harsh light, which is not flattering at all! There are ways around this, though, such as using a flash diffuser, but the best solution is to use a hotshoe-mounted flashgun and bounce the flash off a wall or ceiling. Most flashguns offer this option, with some rotating side-to-side as well as flipping up and down. Exposure control is automatic too, making the whole process very easy. Nevertheless, there are a few tips to ensure you use this technique well.

It's best to pick a surface to bounce off that is neutral in colour – white is the most reflective surface (and also the most common ceiling colour), but you'll find a cream wall or ceiling can illuminate your subject with a warmer cast. Also remember that you don't always have to bounce light upwards onto the ceiling. If you are shooting portraits, a sideways bounce means that your subject will be lit from the side, which can produce flattering results by casting soft shadows across the face.

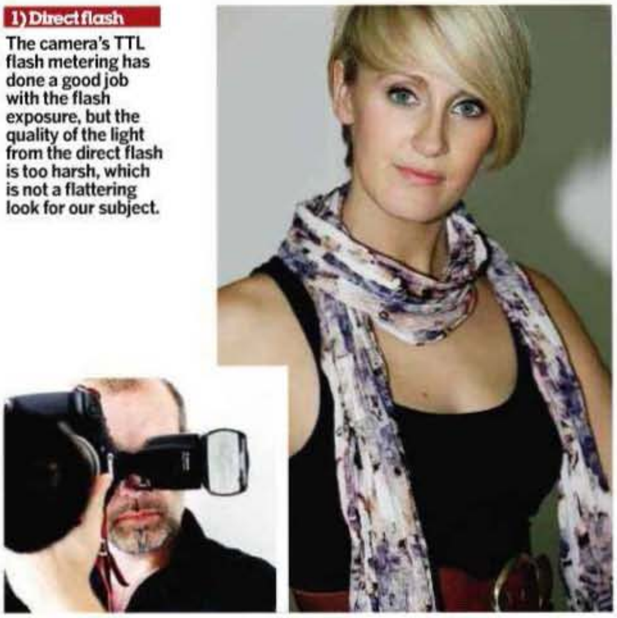
Bounce flash with built-in reflector

Many flashguns now have a built-in reflector, which directs a small amount of light towards the subject, while letting the majority bounce off the ceiling. In turn, this helps reduce red-eye and offers a softer, more even light compared with direct flash. Be aware that a bounce flash from above can produce shadows under the eyes, so it's worth pointing the head to bounce off a wall as this can create softer, more flattering shadows.

Shadows aren't always a good thing though. Portraits taken with ceiling-bounced flash can often exhibit shadows under the eyes – which is not a good look! To get around this, check if your flashgun has a built-in reflector that bounces some of the light towards the subject while allowing the majority of it to bounce off the ceiling. If it hasn't you can take the DIY approach and build a make-shift reflector. To do this, stick a small piece of white card in place to do the same job.

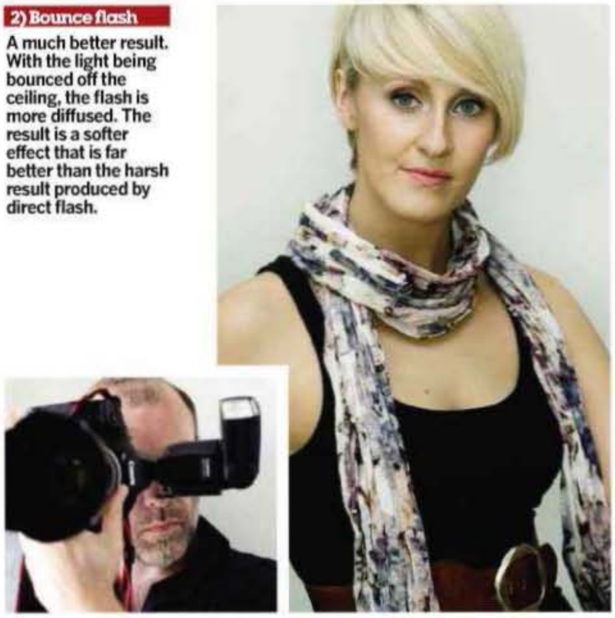
1) Direct flash

The camera's TTL flash metering has done a good job with the flash exposure, but the quality of the light from the direct flash is too harsh, which is not a flattering look for our subject.



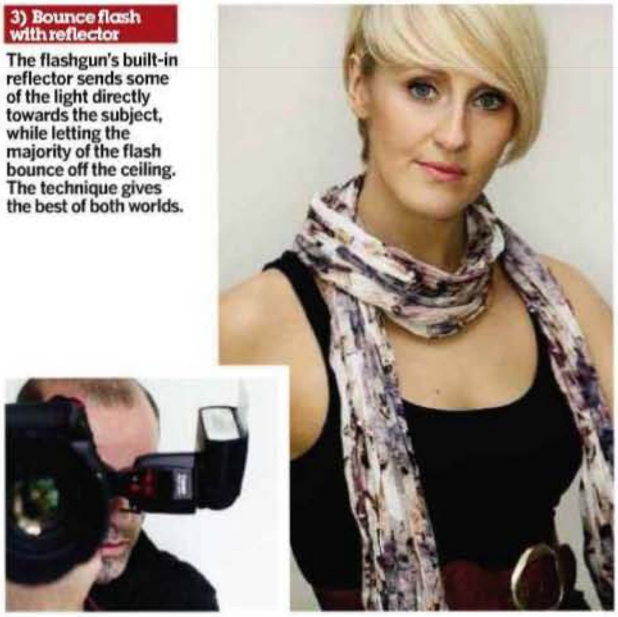
2) Bounce flash

A much better result. With the light being bounced off the ceiling, the flash is more diffused. The result is a softer effect that is far better than the harsh result produced by direct flash.



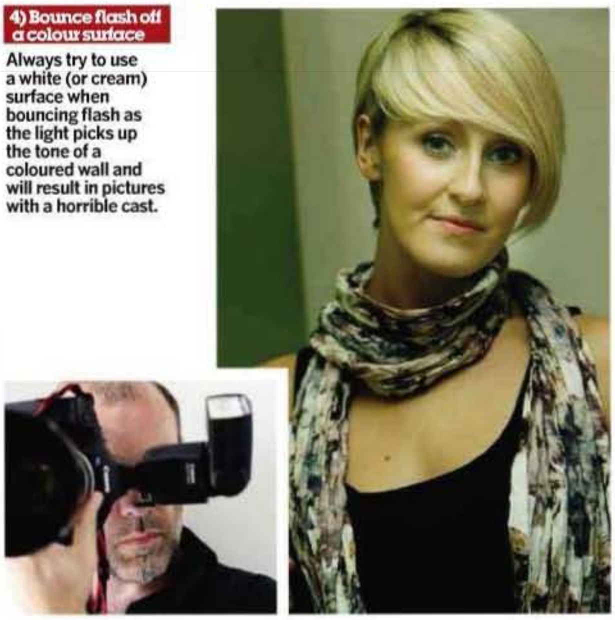
3) Bounce flash with reflector

The flashgun's built-in reflector sends some of the light directly towards the subject, while letting the majority of the flash bounce off the ceiling. The technique gives the best of both worlds.



4) Bounce flash off a colour surface

Always try to use a white (or cream) surface when bouncing flash as the light picks up the tone of a coloured wall and will result in pictures with a horrible cast.



Balancing flash with ambient daylight

WE'VE SEEN HOW fill-in flash works, with a weak burst of flash removing shadows in daylight, but what about going the other way and using flash in daylight as the main source of illumination, while reducing the level of ambient light. This technique is often used for portraits, where lighting up a subject and setting it against a dark background can add drama. There are a few ways of achieving it easily with your digital SLR.

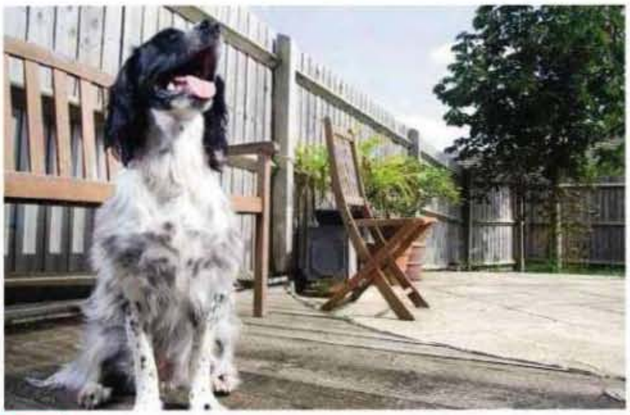
The easiest way of balancing daylight and flash is to use your DSLR's Exposure Compensation (EC) with Flash Exposure Compensation (FEC). Different brands of camera do this in slightly different ways, so it pays to consult your camera's manual, but the general principles are the same. With your flashgun switched on (or your built-in flash popped up), reduce the amount of ambient light contributing to the exposure by setting a negative value to exposure compensation. On Canon DSLRs this is all you need to do, as EC doesn't affect flash. On Nikon DSLRs it does though, so you push the flash power back up by applying +1 stop to FEC. This will darken (underexpose) the background, but leave the subject, which is lit by flash, unaltered. Alternatively, try using your camera's manual mode: meter the scene and dial in the required aperture and shutter speed. The flash will output for this aperture correctly, thanks to the TTL flash metering, so all you need to do to darken the background is use a faster shutter speed (but you are limited how high you can go by the flash sync speed). Your viewfinder exposure scale telling you the extent of the underexposure.

Adding drama by using flash in daylight

For a pet portrait with a difference, Matty Graham decided to photograph Jerry, his two-year old English Springer Spaniel, using flash balanced with daylight. With a combination of exposure compensation and flash exposure compensation, it's possible to adjust the brightness of the daylight-lit background and flash-lit foreground totally independently of each other. Although Matty used his flash off-camera, this is a technique that works just as well with on-camera flash, or with your DSLR's pop-up flash unit. Juggling daylight exposure, flash exposure and a fidgety dog was always going to be a challenge. Matty mounted his Canon EOS 40D on a tripod and tripped it with a remote control, standing to one side with his flash so he could attract Jerry's attention and get her to look the right way. Having the flash coming in from an angle would provide some good sculptural lighting that would give a feeling of depth, too.

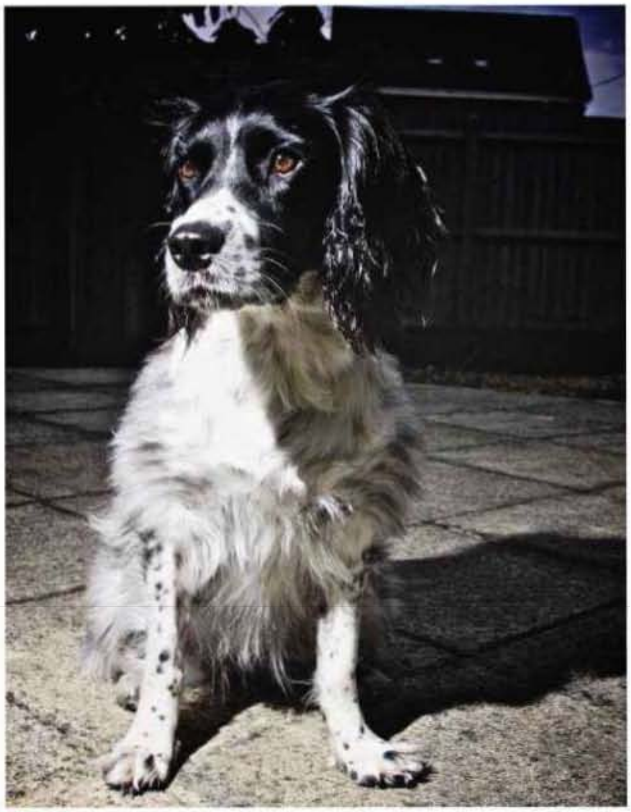
Step 1 I put my Canon EOS 40D and Sigma 18-55mm f/2.8 on a tripod and positioned them low down for a dramatic viewpoint. I'm triggering my flash with a wireless infrared transmitter and firing the camera with a wired remote control.

Step 2 Setting up my Speedlite 580EXII flash is easy: set it to Slave mode and the ETTL flash metering takes care of the rest. The camera is set to manual exposure mode and I'm getting a reading for the background of 1/125sec at f/11.

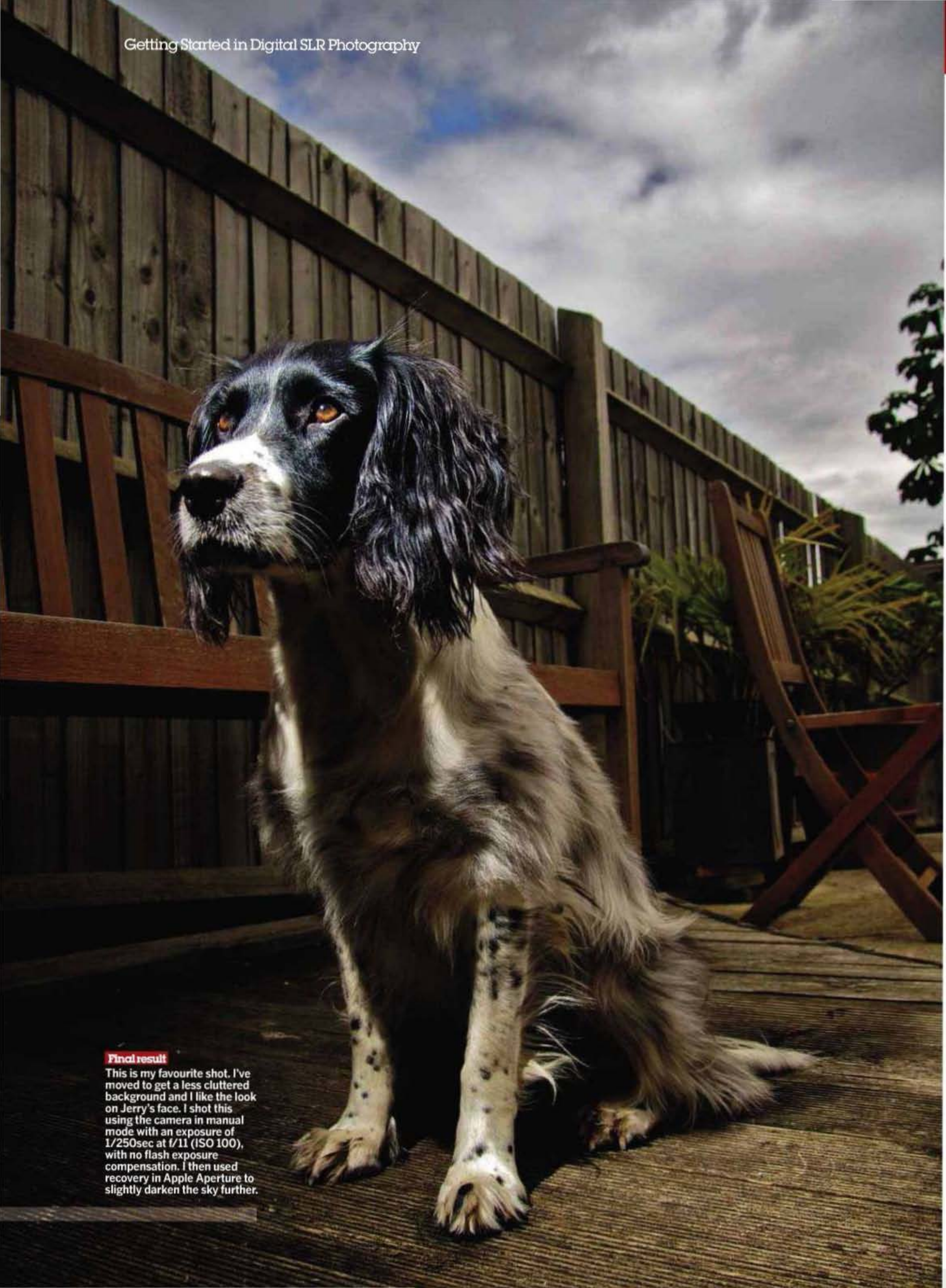


Step 3 My first attempt is a bit disappointing. The background is so light that the effect of the flash is too subtle – more like fill-in flash. I need to darken it while keeping the flash-lit foreground exposure the same.

Step 4 Using spot metering, I took an exposure reading from the brightest part of the scene (the sky) and locked this in, again using manual mode: 1/250sec at f/11. This is a full stop darker, but the flashgun will still expose for f/11 so the foreground should stay the same.



Step 5 This is a much better result! The sky has detail and I like the way the flash makes Jerry stand out against the backdrop. The key thing to remember is to make the background darker, you effectively have to underexpose it further by increasing the shutter speed or closing down the aperture.



Final result

This is my favourite shot. I've moved to get a less cluttered background and I like the look on Jerry's face. I shot this using the camera in manual mode with an exposure of 1/250sec at f/11 (ISO 100), with no flash exposure compensation. I then used recovery in Apple Aperture to slightly darken the sky further.

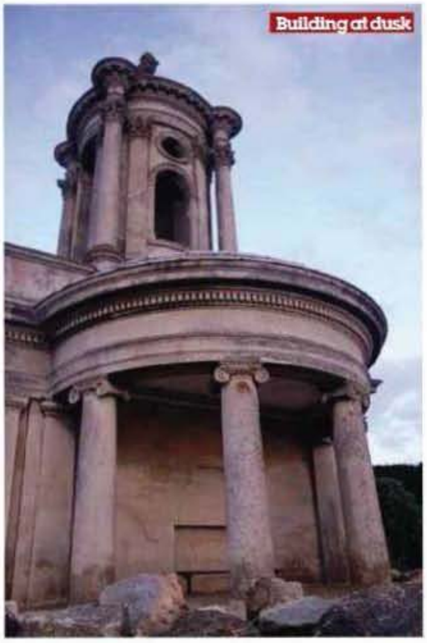
Painting with flash

PAINTING WITH FLASH is the practice of locking a camera's shutter open for a long exposure while someone selectively illuminates parts of the scene by repeatedly firing a handheld (hotshoe) flashgun using the Test button. It's a technique that ideally suits shooting buildings at night

Painting with flash is a very flexible and creative technique. You can fire the flash as many times as you like, from any angle. Coloured gels or filters can also be attached to the flashgun, to change the colour of the projected light to add more interest. Night scenes of church graveyards are popular subjects for this technique, with the photographer lighting the church and headstones with different-coloured gels over a long exposure, resulting in an unusual, multi-coloured image.

It's worth arriving at the scene at dusk and getting set up while there is still enough light to allow you to pre-focus on your subject and see what you're doing. You'll need to mount your DSLR on a sturdy tripod and fire each exposure using a remote release or your DSLR's self-timer. The former has the advantage of reducing the risk of camera shake while also giving you time to get into position with your flashgun. Use aperture-priority or manual mode and choose an exposure of at least ten seconds to begin with. Depending on your initial results, you may want to increase the exposure time. If you can, take a friend along too, to help fire the shutter or to run around during the exposure, firing the flashgun! The key thing to remember is that you must not point the flash head towards the camera. If you do, a hotspot will be recorded on the image, potentially ruining it. It's also important to keep moving when in front of the lens, or you'll be recorded as a ghostly figure. Ensure you take plenty of spare batteries, too, as the power will soon start to deplete due to the high number of flash bursts you'll fire.

There is lots of trial and error involved with this technique, but it's worth setting the flash to manual at 1/2, 1/4 or 1/8 power, to allow you to fire off more bursts in different positions around the scene. Leave it at full power and you'll get less flash bursts due to longer recycling times. The one thing about painting with flash is that it is very hit-and-miss and no two exposures will ever be the same. With practice, you'll be able to work out the exposure time you should set and the approximate number of flashes to fire for each frame. Daniel Lezano headed down to Rutland Water to paint with flash using a Canon EOS 40D and Canon Speedlite 430EX II.

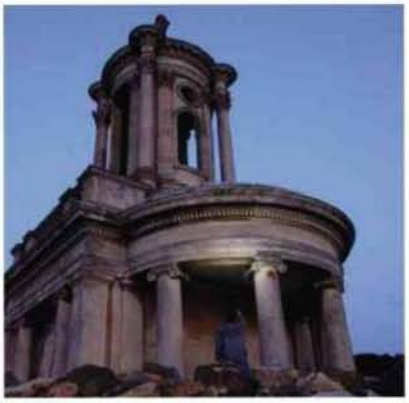


Building at dusk

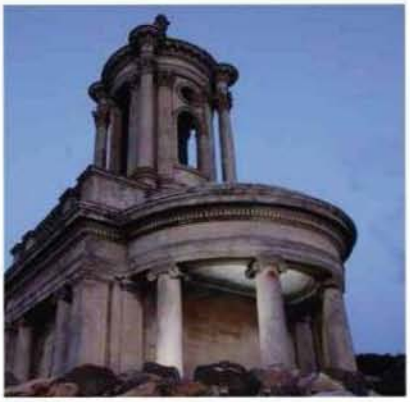
Step 1 I'm using aperture-priority mode and setting the aperture to f/16, which gives an exposure time of 15 seconds. I set a delay of 20 seconds via a remote release to give me time to get in position with my flashgun.

M
1/4
Zoom
MODE
ZOOM
C.Fn
PILOT
ON
OFF

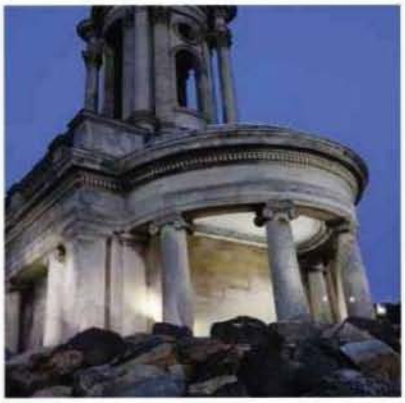
Step 2 I've already set the flashgun to manual and selected 1/4 power. This reduces the recycling time, allowing me to move around and fire more flash bursts than I could if the flashgun was set to full power.



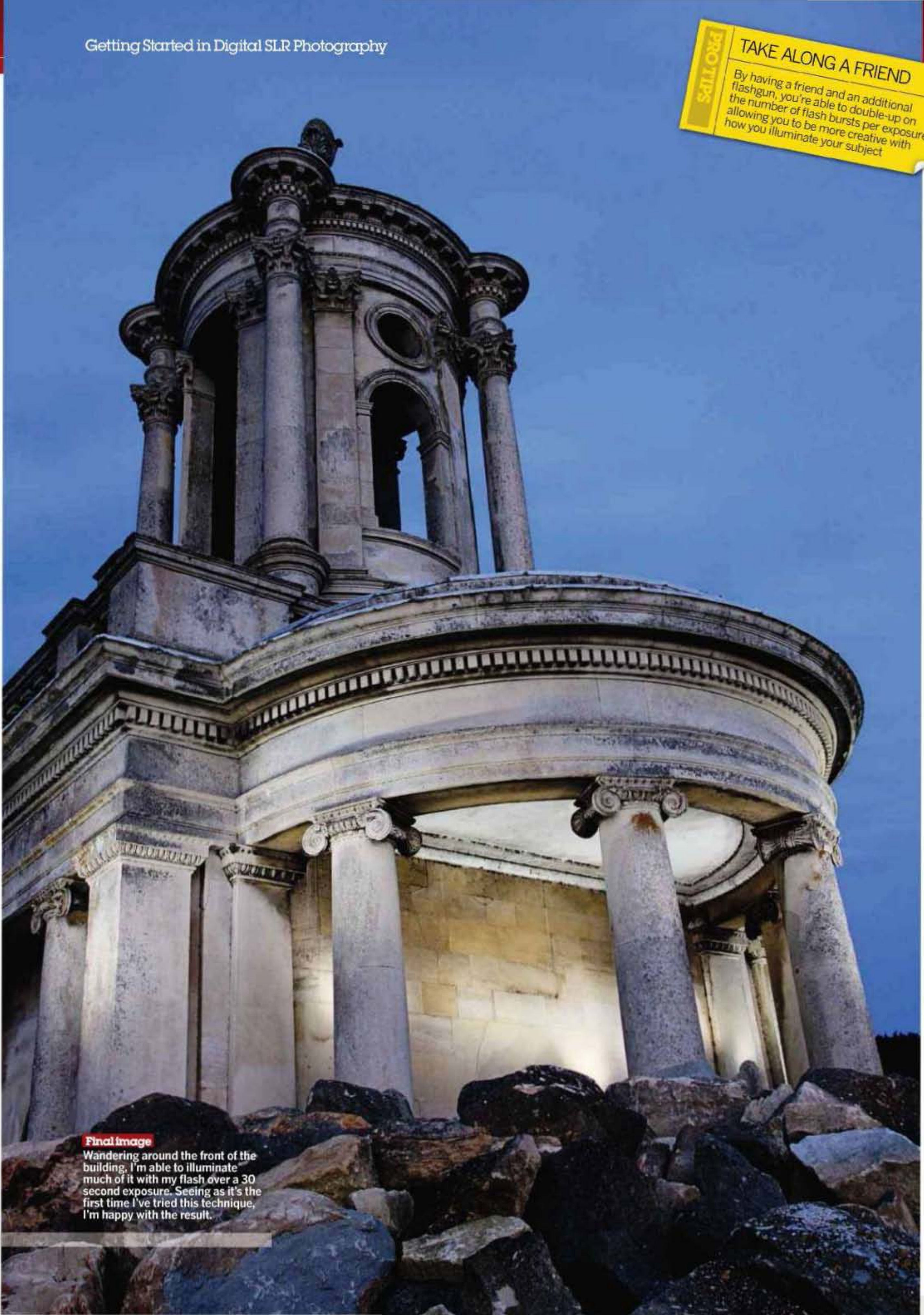
Step 3 Here you can see me firing the flash. If you don't move around during the exposure, you can expect to see yourself appear as a ghostly blur within the scene.



Step 4 By moving around during the exposure, I'm no longer visible. I focus most of my flash bursts toward the ceiling of the semi-circular area at the front of the building.



Step 5 A longer exposure of 20 seconds means more time and more flash bursts to illuminate a wider area of the building. But I'm careless with my aim, resulting in flash hotspots.



Final image

Wandering around the front of the building, I'm able to illuminate much of it with my flash over a 30 second exposure. Seeing as it's the first time I've tried this technique, I'm happy with the result.

PRO TIPS

TAKE ALONG A FRIEND

By having a friend and an additional flashgun, you're able to double-up on the number of flash bursts per exposure, allowing you to be more creative with how you illuminate your subject

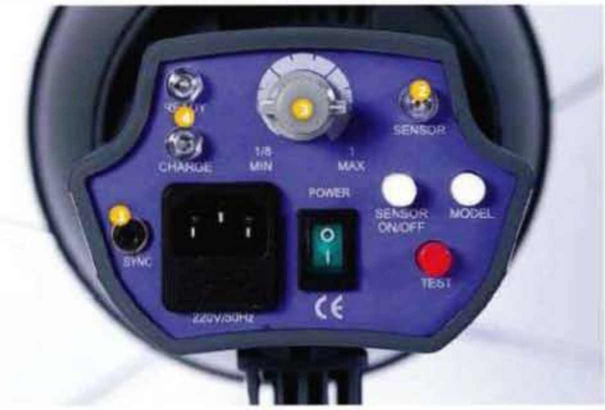
Studioflash outfits

While newcomers may find studioflash intimidating, the truth is using it isn't as difficult as you may think

ALTHOUGH THERE ARE various studioflash kits available, ranging in price from under £200 to thousands, the fact is most of them have very similar features and all follow basic principles of operation. A studioflash head is designed to fire a burst of flash at a given power setting – the extra functions and accessories are all geared to allow the photographer more control of the flash output. Learning how to control a studioflash system can take years of experience to master, but thankfully, getting to grips with the essentials is relatively easy. Much like using ambient light, the key factor behind success is learning how to control it so your subject is lit the way you'd like it to be. The big difference between studio and ambient light is the level of control you have – you are able to fine-tune the lighting's intensity and direction, as well as the nature of the light falling on the subject – far more than you could ever achieve with natural light. This makes it an incredibly versatile form of lighting, but, obviously, one that does need time to use properly. Here we cover the basic workings of a studioflash system and how the various attachments, such as softboxes and brollies, can be used to control how your subject is lit.

Anatomy of a studioflash head

This illustration is based on the rear of an Interfit head, but most brands will have a similar set-up, with easy to use and well-labelled controls.



Rear of light

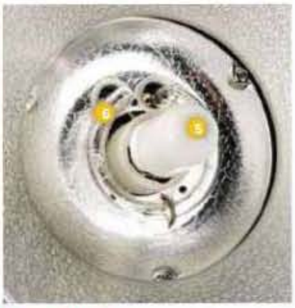
You'll normally find controls on the rear of the head, but some models have them on the side, too.

1) SYNC SOCKET Most studioflash outfits are supplied with a sync lead, which connects your camera to your flash head, to allow the flash to fire when you press the shutter button.

2) SLAVE CELL This sensor detects any flash output, so if your camera is connected to one light in a multiple set-up, its output will trigger the slave cell on other lights, making them fire together.

3) POWER SETTINGS A key function of studioflash heads is being able to adjust the power output. Basic heads have fixed settings eg ¼ power, ½ power etc, while most advanced heads have stepless variable settings.

4) STATUS LIGHTS/BEEPS Many heads have lights that indicate when the head has sufficient charge to fire.



Front of light

Removing the lighting attachment will usually reveal two bulbs, each with different uses.

5) MODELLING LAMP This tungsten bulb remains switched on, to allow you to compose the image, focus on the subject and predict the flash effect.

6) FLASH BULB These provide the powerful flash output. Most brands have specialised bulbs to fit certain heads or studioflash series. They're very fragile, so handle them with upmost care.

TOO HOT TO HANDLE!

Flash heads heat up quickly, so take care not to burn yourself when swapping attachments. The metal mount, as well as the bulb, can get hot, especially when the modelling lamp is turned on

Setting up your DSLR for using studioflash

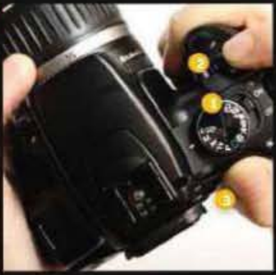
Set the camera to Manual and set the correct flash sync speed. Then fit a PC adaptor to your hotshoe to connect to the flash sync lead

CANON EOS 400D

(1) Set the main control dial to M to select manual mode

(2) Turn the input dial behind the shutter button and set the flash sync speed (1/200sec on the EOS 400D)

(3) Once you've taken a flash meter reading, press and hold down the +/- button, then turn the input dial to set the aperture you require

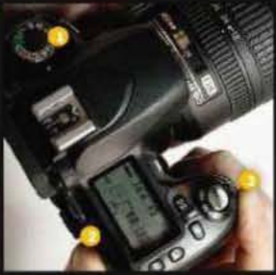


NIKON D80

(1) Set the main control dial to M to select manual mode

(2) Turn the input dial behind the shutter button and set the flash sync speed (1/200sec on the Nikon D80)

(3) Once you've taken a flash meter reading, turn the input dial on the front of the handgrip to set the aperture

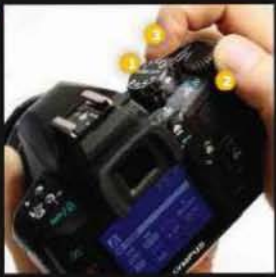


OLYMPUS E-400/E-410/E-420

(1) Set the main control dial on the top-plate to M to select manual mode

(2) Turn the input dial behind the shutter button and set the flash sync speed (1/200sec on the EOS 400D)

(3) Once you've taken a flash meter reading, press and hold down the +/- button, then turn the input dial to set the aperture you require

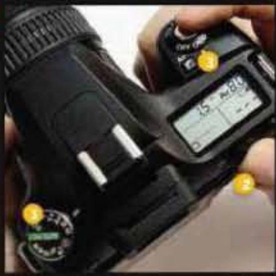


PENTAX K100D/K200D

(1) Set the main control dial on the top-plate to M to select manual mode

(2) Turn the input dial behind the shutter button and set the flash sync speed (1/180sec on the K100D/K200D)

(3) Once you've taken a flash meter reading, press and hold down the +/- button, then turn the input dial to set the aperture you require

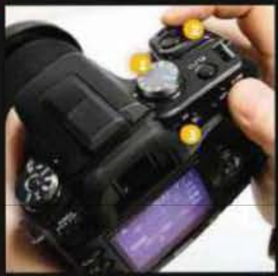


SONY ALPHA 100

(1) Set the main control dial on the top-plate to Tv to select shutter-priority mode

(2) Turn the input dial in front of the shutter button and set the flash sync speed (1/160sec on the Alpha 100)

(3) Once you've taken a flash meter reading, press and hold down the +/- button, then turn the input dial to set the aperture you require



Lighting accessories

Your studioflash system is only as good as the lighting attachments and accessories

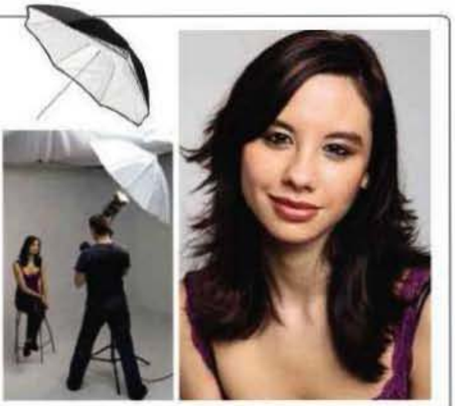
FLASH HEADS ARE designed to produce a high-power burst of light, but it's the lighting attachment that you have fitted to it that dictates the effect of the light reaching the subject. If you've ever looked into buying a studioflash system, you'll no doubt have seen various types of attachments available, each having their own way of affecting the intensity and nature of light. While most basic kits are often supplied with a brolly or two and 'spills', there are a huge number of optional accessories available and getting to know which are best suited to your needs is important. In our comprehensive comparison set below, we have used the most typical types of attachments available for most studio kits to give you an idea of how each affects the light.

As well as lighting attachments, other accessories can play a big part in the quality of your final results, or just make the process a lot easier. For instance, a flashmeter is useful to identify the correct aperture you need to set your camera to for a perfect exposure and a remote trigger is also handy. Which background you use also affects the final image: there are a variety available, from plain to coloured patterns, to paper rolls that fit on frames and collapsible backdrops. A reflector should not also be overlooked either; it bounces light back onto the subject or background as an alternative to using an additional light. Silver is the most efficient, white provides a softer and more natural effect, while a black reflector can accentuate cheekbones!

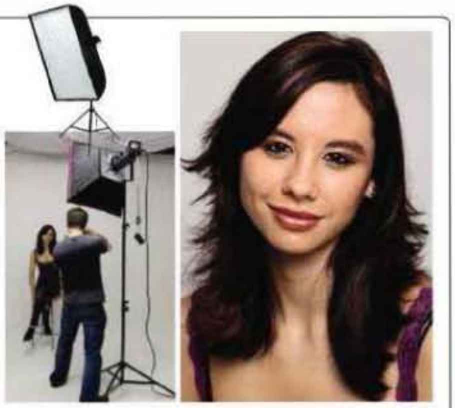
PRO TIPS

FLASH METER READINGS

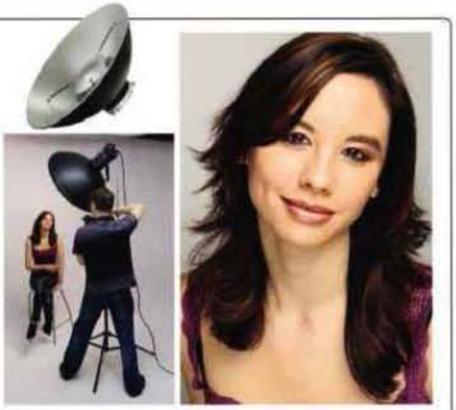
When using studioflash, make sure the white dome (invercone) on your flashmeter is set over the sensor, so that it takes incident light readings, which will prove to be the most accurate



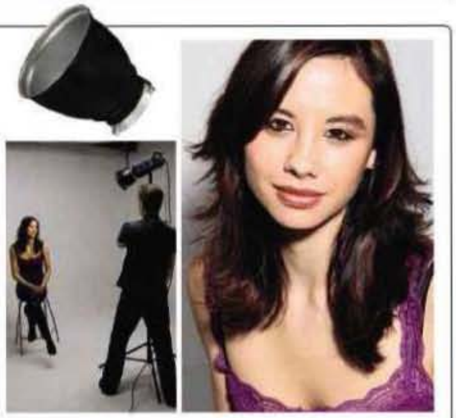
Umbrella (brolly) Available in white, silver and translucent, a brolly is one of the cheapest options available. Silver is very efficient at bouncing light, white gives a soft, natural effect, while translucent brollies provide the most diffused light.



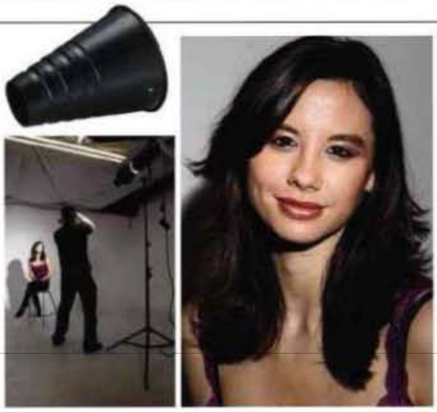
Softbox A real favourite, as it provides a very diffused effect that's ideal for flattering portraits. The larger the softbox, the softer the light it produces. The majority are square, but some are rectangular and thin (also called strip lights).



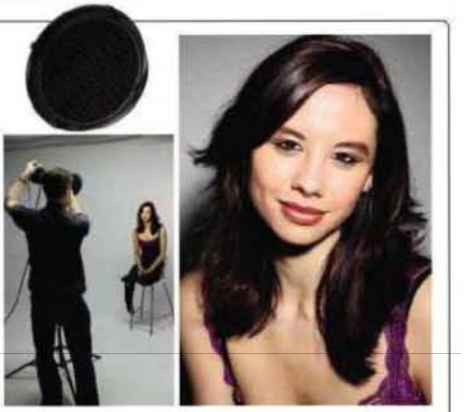
Beauty dish Beauty dishes are often used, as you may expect, for close-up 'beauty' and make-up shots. They give off a very harsh light in the centre, which enhances make-up, but also highlights flaws on a subject's skin.



Spill (spill kill) Often supplied with the flash head, they help direct light in a concentrated beam. With portraits, they're useful for lighting backgrounds, but quite harsh when aimed at a subject's face.



Snoot This conical attachment provides a hard-edge and a directional beam of light that's better suited for backlighting or as a hairlight than providing the key lighting for portraits.



Honeycomb grid These provide a soft-edged circle of light and are a popular alternative to a snoot. They act in a similar way to a spotlight, but provide a wider angle spot effect. Honeycombs are available with various sizes of grids.

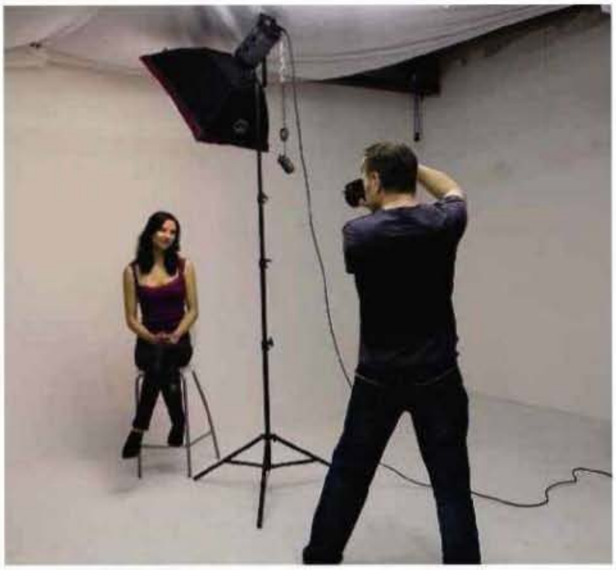
Studio set-up: One light

To get to grips with studio lighting, try a simple set-up with one light; here are five techniques to get you started

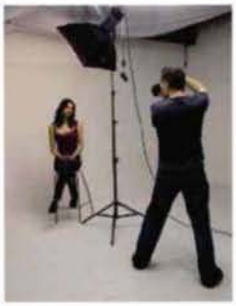
If you want to learn how to control your lighting, you're best off starting with just one light. One light is more than sufficient to produce some stunning results and many great photographers still use a single head for their work. After all, outdoors we only have a single light source – the sun. This set-up is very easy to control and the smallest adjustment to the light on your subject has a clear effect. This forces you to fine-tune the light's angle and diffusion method. And while you'll only have one source of illumination, you can also use reflectors in your set-up to bounce light and fill in any shadows.

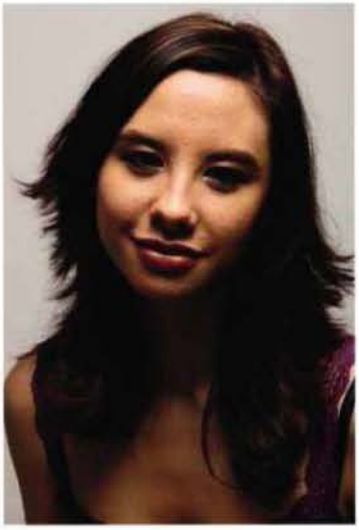
The set of images below shows what happens when you position your single light at different heights and angles – as you can see, it's crucial that you learn the dos and don'ts of how to set up your single studioflash head to avoid some of the unflattering results shown below.

As mentioned earlier, you need to set your DSLR to manual mode and set it to its flash sync speed (if you don't know it, use 1/125sec as a safe bet or, refer to the user's manual). The aperture is determined by the meter reading you take, which is easy to do with a one light set-up. With the sync lead from the light attached, hold the meter in front of the subject's face and press the button to fire the flash and take a reading. By adjusting the power setting on the flash head you can effectively change the aperture you work with too. Add power to set a smaller aperture and reduce power to use a wider aperture.

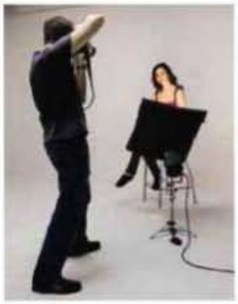


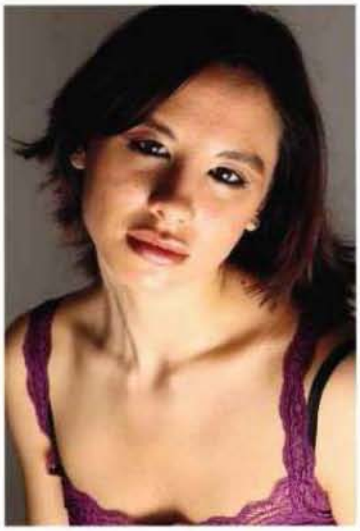
ONE LIGHT All you need to get started is your DSLR and a single flash head. With a bit of practice, you will soon find yourself getting great results!



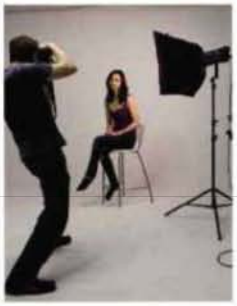


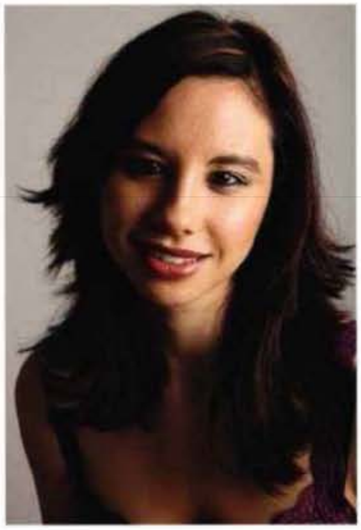
1) Lit from above With the light positioned high above the model's head, you get a more natural-looking light, though shadows can become harsh under the nose and chin. For the best results, get the model to look towards the light. You could also ask her to hold a reflector to fill the shadows.



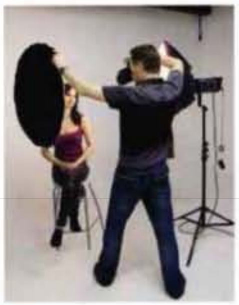


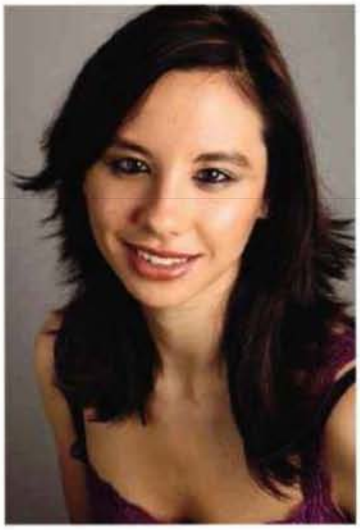
2) Lit from below Placing the light lower than the model's head, pointing upwards will eradicate any unsightly shadows under the nose and chin. For best results get the model to look down towards the light, which, as you can see also makes catchlights appear in the subject's eyes.





3) Lit from the side Place the light to either the left or right side of your model's face for a strong, directional light, which will keep half of the face in shadow. To increase your chances of capturing the catchlights in your subject's eyes, it is important to make sure the light is far enough forward.



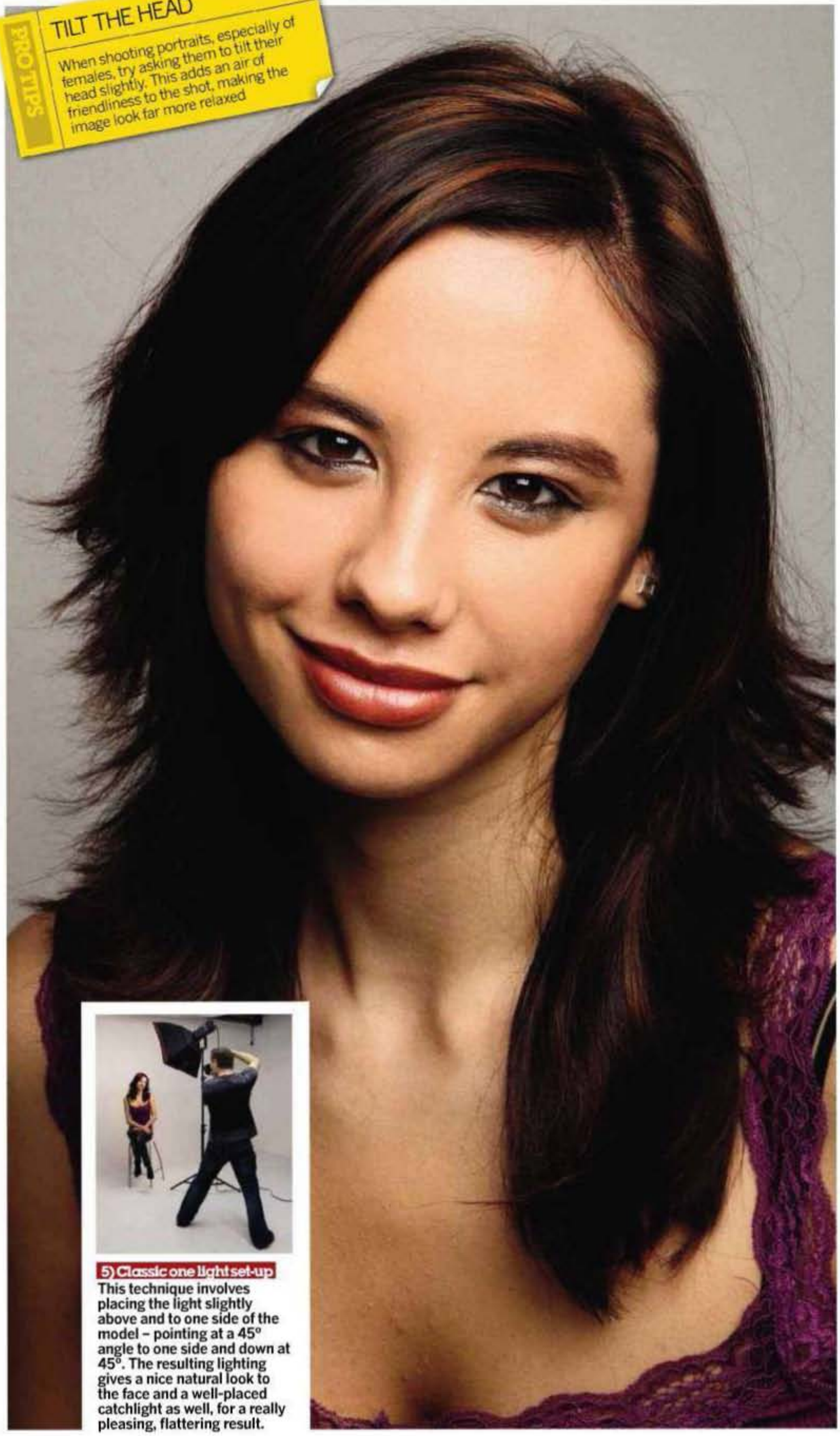


4) One light & reflector By holding a reflector close in to the face, on the opposite side from the light, you will be able to even up any harsh shadows, much like using a second head. The closer you place it to the model, the stronger the reflection will be. (Though it helps to have an assistant!)

PRO TIPS

TILT THE HEAD

When shooting portraits, especially of females, try asking them to tilt their head slightly. This adds an air of friendliness to the shot, making the image look far more relaxed



5) Classic one light set-up

This technique involves placing the light slightly above and to one side of the model – pointing at a 45° angle to one side and down at 45°. The resulting lighting gives a nice natural look to the face and a well-placed catchlight as well, for a really pleasing, flattering result.

Q&A: Studioflash

How much should I spend on a studioflash system?
We'd recommend you start with a two-head system, with a softbox and umbrella. Tests by *Digital SLR Photography* magazine found several to be excellent, including the £250 Interfit EX150 MkII and £490 Elinchrom D-Lite 2.

What advantages do more expensive outfits offer?
General build quality (and reliability) will be better, but the key benefits are power, features and performance. More power is useful as you can set the lights up further away from your subject, while relative light loss from attachments like softboxes is reduced. You'll find that more expensive heads allow more control over flash output and faster flash recycling times.

Are attachments from different systems compatible?
In general, different brands have their own fittings so aren't compatible. However, Chimera make speedrings for their softboxes, which are compatible with just about any system. Visit: www.chimeralighting.com

How should I set up my DSLR to use studioflash?
You will need set it to manual mode as the metering system is only set up for ambient light. Set the shutter speed to the flash sync speed and the aperture to whatever the flashmeter states.

How do I take an exposure reading with studioflash?
Use a flashmeter connected to a light via a sync lead. Once you've set up the lights, hold the meter in front of the subject's face, take a reading and set the meter's recommended aperture on the camera. Don't forget to ensure that the flashmeter and DSLR are both set to the same ISO rating!

How do I connect my DSLR to my studioflash system?
The plug at the end of the studioflash sync lead connects to your DSLR's PC socket. If your DSLR hasn't got a socket, buy an adaptor (around £10) that slots on your camera's hotshoe and connect the lead to this. A more expensive option is a wireless trigger that sits on your hotshoe and triggers a receiver on the flash head.

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EXPERT BUYING ADVICE

DIGITAL SLR ACCESSORIES

Over the following pages, the experts at *Digital SLR Photography* highlight camera accessories that represent the best value for money

The secret to the success of digital SLRs is undoubtedly the extensive range of accessories available to help you make the most of your photography. At the heart of a DSLR system lies essential gear such as lenses and flashguns, as well as useful accessories such as tripods, bags and filters. Because camera shops are packed with so much kit, it can leave you confused as to what products are the best value. Over the next few pages, we bring you a selection of the most highly rated accessories from the leading brands, but first, here is some useful buying advice to help you make the right choice.

Gadget bags and photo backpacks

You should protect your DSLR outfit by keeping it stored in a quality photo bag. There are two main types available, the gadget bag and the backpack. The former has easy access, so you can get to your gear more quickly, while the backpack evenly distributes the weight across your back, making it a better choice if you plan to carry your gear for long periods of time. The following factors are worth considering:

COMFORT: Ensure the bag has thick straps to improve comfort and try the bag out before purchase to ensure you're happy with how it feels.
CAPACITY: Has the bag enough room not only for your current outfit but for any additions in the near future? Buy a bag that has more space than you currently need, but don't buy one that's too large as if you fill it, it will be too heavy to carry comfortably.
PROTECTION: Check the bag's padding and ensure the internal dividers are well padded and adjustable. Are there enough pockets and compartments for your needs, and is there a weatherproof cover to protect the contents from the elements?

Features

1) STRAPS Check to see if the straps are adjustable, padded and wide, to stop them from cutting into your shoulder. Also look for waist straps.

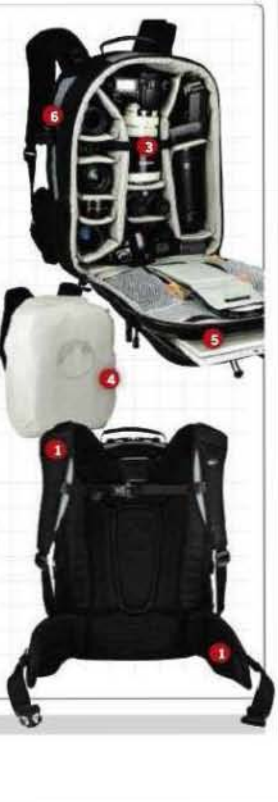
2) PADDING Some bags have pressure pads on the back, which take a lot of the strain out of long journeys and spread the weight of the gear over a larger area.

3) STORAGE/CAPACITY Too much empty space will unbalance the bag, which is bad for your back. Look for a bag with adjustable dividers.

4) WEATHERPROOFING/RAIN COVER Most bags are weather-resistant or weatherproof, and others have all-weather covers included. Makes sure zips are also hidden or at least weather-resistant.

5) LAPTOP COMPARTMENT Make sure the laptop compartment is big enough for your computer, as they do vary in size.

6) ACCESSORY CLIPS Some bags allow you to attach further bags, tripods and monopods, but some are only compatible with the manufacturer's own clip systems.



Tripods

Buy the best tripod you can afford: you need one that offers excellent stability. Tripods come in various sizes and while some are supplied with a head, with others the head is optional. Aluminium tripods are ideal for studio-based work but if you plan on using it outdoors, look to invest in a carbon-fibre model as they're lightweight but just as sturdy.

Features

1) HEAD There are various tripod heads available, but three-way pan and tilt is the most popular for general use. Some tripods come with interchangeable heads. When choosing a tripod, attach your DSLR securely and ensure the head is free from movement.

2) QUICK RELEASE PLATE These allow you to quickly attach and detach your DSLR to and from the tripod.

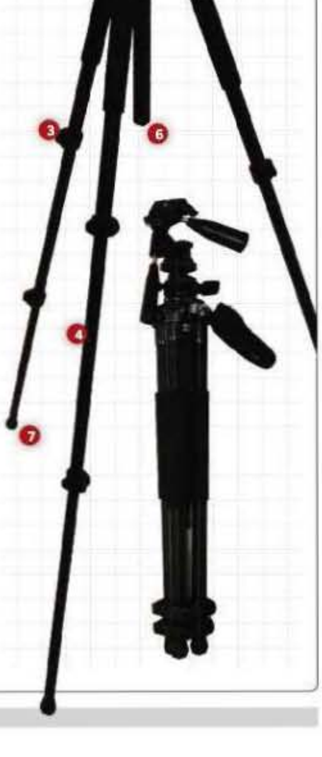
3) LEG LOCKS Most tripods feature 'clip' locks to secure the height, which are easy to use and provide a firm grasp.

4) LEG SECTIONS Tripods with three leg sections or less tend to be the most sturdy: the more sections you have, the less stable they can become.

5) SPIRIT LEVELS Useful for landscape photography in particular, many tripods feature built-in spirit levels, but if not, your local photo store should sell one that slots on to your hotshoe.

6) BAG HOOK Some tripods have a hook on the central column to hang a bag from. Using a bag's weight can add stability to the tripod, which is useful in windy conditions.

7) TRIPOD FEET Spikes are good for grip outdoors but can scratch flooring. Rubber feet offer good grip indoors and outside and are the best choice for general use.



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Our selection of great value lenses

We've tested many lenses over the years, so we have selected a few we think are worth considering. We've focused on a selection of six lenses from independent brands that offer great value and high quality optics

Sigma 10-20mm f/4-5.6 EX DC HSM

www.sigma-imaging-uk.com

Guide price: £550

Street price: £450

MAIN SPECIFICATIONS

- **Lens construction:** 14 elements in ten groups
- **Aperture range:** f/4-5.6 to f/22
- **Filter thread:** 77mm
- **Dimensions:** 83.5 x 81mm
- **Weight:** 470g
- **Fittings:** Canon, Nikon, Pentax, Sigma and Sony

This ultra-wide zoom is a real favourite with landscape lovers thanks to its compact design and sharp optics. Like all Sigma EX lenses, it's well constructed and it feels solid. The barrel sports manual focus ring and the optics deliver high sharpness throughout the range with slight evidence of chromatic aberration.

Tamron 10-24mm f/3.5-4.5 Di II LD

www.intro2020.co.uk

Guide price: £450

Street price: £400

MAIN SPECIFICATIONS

- **Lens construction:** 12 elements in nine groups
- **Aperture range:** f/3.5-4.5 to f/22
- **Filter thread:** 77mm
- **Dimensions:** 83.2 x 86.5mm
- **Weight:** 406g
- **Fittings:** Canon, Nikon, Pentax and Sony

Tamron's 11-18mm has proved popular for years, but this addition, with its very wide focal length range, is even more versatile. It's compact and lightweight with good handling and an internal focusing system that will please filter users. Optical quality is good, thanks to the inclusion of aspherical and low dispersion elements.

Tamron AF 55-200mm f/4-5.6 LD Di II

www.intro2020.co.uk

Guide price: £200

Street price: £120

MAIN SPECIFICATIONS

- **Lens construction:** 13 elements in nine groups
- **Aperture range:** f/4-5.6 to f/32
- **Filter thread:** 52mm
- **Dimensions:** 71.6x83mm
- **Weight:** 300g
- **Fittings:** Canon and Nikon

Normally sharpness falls off as you zoom through the focal lengths, but this lens retains good sharpness throughout. Its wide zoom ring is very easy to use. The autofocus turns in a good performance – it's not the quickest or quietest but is accurate and performs well in low light. It's light and compact and is a great budget telezoom.

Tamron AF 18-270mm f/3.5-6.3 Di II VC

www.intro2020.co.uk

Guide price: £600

Street price: £450

MAIN SPECIFICATIONS

- **Lens construction:** 18 elements in 13 groups
- **Aperture range:** f/3.5-6.3 to f/22
- **Filter thread:** 72mm
- **Dimensions:** 79.6x101mm
- **Weight:** 550g
- **Fittings:** Canon and Nikon

The Tamron 18-270mm boasts an incredible 15x zoom range, giving an effective focal length of 28-419mm, making this suitable for almost every type of subject. The addition of image stabilisation gives it a four-stop benefit, so it can be used handheld in low-light conditions or at longer focal lengths, with a reduced risk of shake.

Tamron SP AF 60mm f/2 Di II L Macro

www.intro2020.co.uk

Guide price: £540

Street price: £540

MAIN SPECIFICATIONS

- **Lens construction:** 14 elements in ten groups
- **Aperture range:** f/2 to f/22
- **Filter thread:** 55mm
- **Dimensions:** 73X80mm
- **Weight:** 400g
- **Fittings:** Canon, Nikon and Sony

Designed for exclusive use with DSLRs with APS-C sensors, this lightweight lens holds an ace card in the form of its maximum aperture of f/2, which gives a couple of big advantages over its rivals. As well as a brighter viewfinder image, it creates a very shallow depth-of-field – highly desirable by macro photographers.

Sigma 120-400mm f/4.5-5.6 DG OS HSM

www.sigma-imaging-uk.com

Guide price: £749

Street price: £600

MAIN SPECIFICATIONS

- **Lens construction:** 21 elements in 15 groups
- **Aperture range:** f/4.5-5.6 to f/32
- **Filter thread:** 77mm
- **Dimensions:** 92x203mm • **Weight:** 1,640g
- **Fittings:** Canon, Nikon, Pentax, Sigma and Sony

Despite its focal length, this high ratio zoom is relatively compact and includes an Optical Stabiliser (OS), a rear focusing system and HyperSonic Motor (HSM) for quiet, high-speed focusing. Its minimum focusing distance is 150cm with a magnification of 1:4.2 – something that is sure to appeal to nature photographers.

Giottos MTL9351B and MH5211 Head

Guide price: £130

Street price: £105

- **Length (closed):** 64cm
- **Number of leg sections:** three
- **Height (legs extended):** 159cm
- **Type of Head:** three-way pan and tilt
- **Weight:** 2100g

159cm
Digital SLR
BEST BUY

This attractive tripod is very sturdy for its price, with solid aluminium legs and foam insulators to keep a users' hands from sticking to the tripod on cold days. The three-way head is easily controlled by two levers, and features three spirit levels in addition to the one on the legs, so there's no excuse for wonky horizons! This tripod has a lockable rotational central column, which can be removed and re-inserted horizontally or inverted, which is ideal for doing macro photography. The tripod comes with its own tool kit and a hidden bag hook underneath the central column.

Verdict

A good sized, highly adjustable tripod that would be ideal for macro and landscape photography.

Build	★★★★★
Features	★★★★★
Stability	★★★★☆
Value	★★★★★
Rating	★★★★★

Slik Pro 340DX

Guide price: £140

Street price: £115

- **Length (closed):** 49cm
- **Number of leg sections:** four
- **Height (legs extended):** 147cm
- **Type of Head:** Three-way pan and tilt
- **Weight:** 1580g

147cm
Digital SLR
HIGHLY RATED

This is one of the smallest tripods we've included and comes supplied fitted with a head. Its aluminium, magnesium and titanium alloy body makes it light and deceptively solid. The legs have foam insulation and the locks are plastic but strong. The head is a three-way pan and tilt, with two levers for easy control. There is also a panning lock, and a lockable central column for added versatility. The tripod is sturdy with three leg sections extended, but struggles to remain still in windy conditions when all four sections are used. Designed for loads up to 3kg, it should cope with most DSLR outfits.

Verdict

A nice tripod that offers good stability and would prove to be a good choice for travel and outdoor use.

Build	★★★★★
Features	★★★★☆
Stability	★★★★★
Value	★★★★☆
Rating	★★★★★

Tripod: Manfrotto 190XPROB

Guide price: £110

Street price: £87

Head: Manfrotto 460MG

Guide price: £70

Street price: £60

- **Length (closed):** 57cm
- **Height (legs extended):** 146cm
- **Number of leg sections:** three
- **Maximum load:** 5kg
- **Weight:** 2250g

146cm
OUTFIT £180
Digital SLR
BEST BUY

This aluminium tripod is lightweight but its legs are very sturdy. The flip locks are secure, and there are vari-position locks to keep the legs stable at different settings. The central column can be positioned horizontally for macro shots, without removing it from the legs, making the process fast and easy. The lack of panning handles may not be to everyone's taste, but the head is so versatile – able to pan, tilt and swivel in just about any direction – that it more than makes up for it. Spirit levels can be found on the head and central column brace, and there's a bag hook on the legs.

Verdict

Reasonably light, strong and with some great features. A better choice for outdoor use than the Giottos.

Build	★★★★★
Features	★★★★★
Stability	★★★★★
Value	★★★★★
Rating	★★★★★

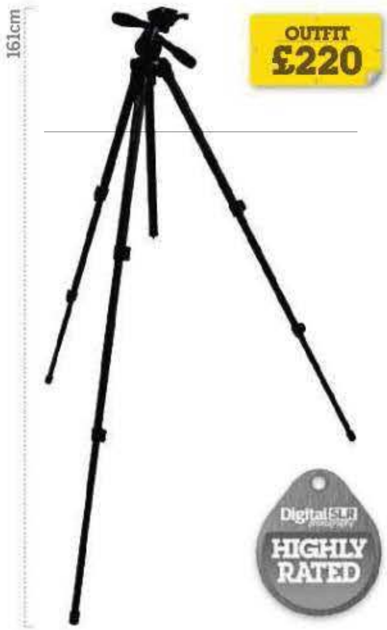
Tripod: **Velbon** Sherpa 435

Guide price: £180
Street price: £82

Head: **Velbon** PHD-41Q

Guide price: £40
Street price: £36

- **Length (closed):** 53cm
- **Height (legs extended):** 161cm
- **Number of leg sections:** three
- **Maximum load:** 3kg
- **Weight:** 1488g



This aluminium tripod is also very light, but is sturdy for its size and weight. The legs have strong flip locks, and an interesting, sliding multi-angle leg lock, which allows users to set the angle of the leg very quickly. The central column can be split for macro photography, and is reversible for low level work. The three-way pan and tilt head is versatile, and can be easily adjusted into just about any position. The three spirit levels are also very easy to see from all angles, and would be very useful to landscape photographers and those to whom precision is important.

Verdict

A good choice for travel, but not ideal for use in strong winds, or for those using a heavy DSLR outfit.

Build	★★★★☆
Features	★★★★☆
Stability	★★★★☆
Value	★★★★☆
Rating	★★★★☆

Tripod: **Manfrotto** 055XPROB

Guide price: £140
Street price: £109

Head: **Manfrotto** 322RC2

Guide price: £105
Street price: £81

- **Length (closed):** 65.5cm
- **Height (legs extended):** 178.5cm
- **Number of leg sections:** three
- **Maximum load:** 7kg
- **Weight:** 3150g

178.5cm
OUTFIT
£245
Digital SLR Photography
BEST BUY

The build quality of this die-cast aluminium tripod is excellent. It is very sturdy and very reassuring. It features the same dual positioning central column as the 190XPROB, as well as a spirit level, bag hook and foam leg grips. The legs each have a four-position lock, which makes it versatile and secure. You'll either love or hate the ball grip head, but we found it quick and easy to adjust, getting your camera into the right position with the minimum of fuss. Not having to tighten levers saves time, and reduces the risk of knocking the head out of place, though it also has its own spirit level.

Verdict

An excellent tripod that would suit all but those who demand the weighty benefit of carbon fibre.

Build	★★★★★
Features	★★★★★
Stability	★★★★★
Value	★★★★★
Rating	★★★★★

Tripod: **Giottos** MT8246B

Guide price: £190
Street price: £140

Head: **Giottos** MH1302-652

Guide price: £70
Street price: £62

- **Length (closed):** 51cm
- **Height (legs extended):** 148cm
- **Number of leg sections:** four
- **Maximum load:** 3kg
- **Weight:** 1375g

148cm
OUTFIT
£260
CARBON-FIBRE
Digital SLR Photography
BEST BUY

This tripod is exceptionally light for its size, yet very sturdy, however the maximum load may prove restrictive for those with heavy outfits. The rubberised twist locks are secure with the three-position angle locks ensuring the legs don't slip, which is reassuring to those using expensive kit. The central column is reversible for low level, macro shots, and has a bag hook. The ball-and-socket head is also very secure, and is easy to manoeuvre into just about any position. It has a variable friction control, allowing the user to make precision adjustments quickly and easily.

Verdict

Value and versatility make this a great choice for most types of photography. Definitely a best buy.

Build	★★★★★
Features	★★★★★
Stability	★★★★★
Value	★★★★★
Rating	★★★★★

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‡ This image has been stitched in post production.

Useful accessories

As you've no doubt already discovered, there is no shortage of options available for those looking to expand their digital SLR system. Here we cover a variety of accessories that you should consider

1) MEMORY CARDS The price of memory cards has fallen to such a low that there is little excuse for not having a small collection of them in your kit bag. We recommend that you invest in two to six 4GB cards, and that you ensure they're from a reputable brand like Lexar or SanDisk to minimise the risk of any faults.

2) PERSONAL STORAGE DEVICE If you plan to travel for any longer than a weekend, you'll need some form of image back-up. A laptop's the ideal choice if you want to Photoshop your images while away, but for most, a personal storage device is a better option. Choose a model with a large LCD monitor so you can review and edit images. The Jobo Giga Vu Evolution and Extreme models are excellent, but our favourite is the 80GB Epson P-6000.

3) LENS HOOD As well as preventing flare from the sun, which can ruin picture quality, a lens hood also provides suitable protection for your lens in the rain, so leave it fitted at all times. Watch out for vignetting on ultra wide-angle lenses.

4) REMOTE RELEASES Long exposures mean camera shake is a real problem. Using an electronic remote release helps minimise camera movement when firing the shutter. The type you'll need depends on the DSLR you own, so check your instruction book or the manufacturer's website. Prices start at around £20.

5) CLEANING KIT Keep one or even two lens cloths in your gadget bag. As well as being perfect for cleaning dirt marks and dust from your lens surfaces, they're also ideal to wipe away raindrops. Two cloths allow you to use one just for moisture and heavy soiling.

6) HOTSHOE SPIRIT LEVEL Avoiding uneven horizons is relatively easy. Use a tripod with an integral spirit level or slip a cheap and cheerful spirit level onto your hotshoe. Alternatively, buy a Seculine Action Level (www.intro2020.co.uk) and use its colour LEDs and audible beeps to help you straighten up your camera.

7) SPARE BATTERIES Make sure you take your charger away with you and charge your batteres the night before. If you can, carry a spare set with you. If your DSLR uses a lithium-ion cell, as well as the branded battery, there are various options too. Ask your dealer or check the classified and dealer ads in *Digital SLR Photography* magazine for details. If your DSLR uses AA batteries, you'll find rechargeables from the likes of Energizer are superb, as is the new range of Eneloop batteries from Sanyo (www.intro2020.co.uk).

8) SENSOR CLEANING KIT Your DSLR's anti-dust system isn't always effective, so it's worth considering buying a sensor dust cleaning system. Kits come in basic set-ups, with swabs and cleaning fluid, to Delkin sophisticated Sensorscope system (www.delkin.com).

9) ADOBE PHOTOSHOP ELEMENTS 8 Adobe's Photoshop package is the undisputed king of image manipulation software and Elements is its cut-price yet powerful sibling. Buy it!

10) FILTER SYSTEM Owning a decent filter system opens up many creative possibilities, so look to add filters to your kit bag as early as possible. While screw-in filters are a good choice, you'll find slot-in systems (square filters in a holder screwed onto your lens) offer the best value. Cokin is the number one brand (www.intro2020.co.uk).

11) EXTERNAL HARD DISK You should always back up your digital files onto an external hard disk (as well as on to DVD) in case your computer hard disk crashes. With 1TB hard disks costing under £100, it's an inexpensive route for archiving your images.

12) LCD MONITOR SHADE Your DSLR's LCD monitor can be hard to view in bright conditions, but an LCD shade makes all the difference, while also protecting the screen when closed.

13) IMAGE RECOVERY SOFTWARE Recovery software is a must for digital SLR photographers, as it can help retrieve 'lost' images from faulty memory cards. Image Recall's Don't Panic, for PC and Mac, is as good as it gets (www.imagerecall.com).

14) CARD READER The fastest and easiest method to transfer images to a computer is to use a card reader. Multi-card readers, such as the Lexar Dual-Slot shown here, represent the best value.

15) INKJET PRINTER The process of home printing is easier, faster and cheaper than ever. With so many printers on the market, the choice is tough. A3 printers give the most flexibility, as an A3+ print is more than big enough to hang on a wall, by A4 printer are better value.

1
SanDisk Extreme IV CompactFlash 8GB
2
EPSON
3
4
Nikon
5
FUJIFILM
6
ON
OFF
7
SANYO
eneloop
eneloop
QUICK CHARGER
8
9
ADOBE PHOTOSHOP ELEMENTS 8
10
11
12
13
LOST
DON'T PANIC
14
Lexar
15
EPSON

BACKPACKS

Lowepro
Vertex 200

www.daymen.co.uk

Guide price: £185

Street price: £130

- **Dimensions:** 32x26x47cm
- **Weight:** 3,320g

Digital SLR BEST BUY

A high-end photo backpack for the landscape photographer who lugs lots of kit over large distances, or the sports photographer, shooting in a variety of locations. You can get two DSLRs in there, with lenses attached, and a further five lenses and a couple of accessories.

Also present is a laptop compartment, for those that like to edit their photographs away from home. Two massive accessory pockets on the front of the bag give ample room for filters, memory cards and spare batteries. A removable tripod mount is included and this is sturdy enough to cope with full-sized, heavyweight camera supports.

The bag is constructed from tough nylon and the main zips are well protected against water. The whole bag can be encased in a rain cover that is stowed in its own pocket when not in use.

Even when fully loaded, the Vertex 200 is easy to carry, thanks to its adjustable straps and a padded back support. There is really very little to dislike about this bag.

Verdict

A well-designed photo rucksack for the photographer who wants to take everything they own on location. A great choice for the landscaper.

Build	★★★★★
Features	★★★★★
Performance	★★★★★
Value for money	★★★★★
Rating	★★★★★

Tamrac
Expedition 7x

www.intro2020.co.uk

Guide price: £200

Street price: £150

- **Dimensions:** 33x34x50cm
- **Weight:** 2,948g

Digital SLR BEST BUY

Expedition by name, expedition by nature. Like the Lowepro PhotoTrekker, the Tamrac Expedition 7x is aimed at the photographer transporting a lot of kit.

In the main, the design of the Tamrac is very similar to the Lowepro: a main compartment is accessed by unzipping the whole of the front section, which then hinges back. Inside are sturdy padded dividers that can be rearranged to suit your outfit. On the inside of the lid are three accessory pockets for filters etc, and the outside of the bag sports two more, for memory cards and batteries. These have Tamrac's useful red flag system for indicating which card and batteries have been used and which haven't. Tripod straps are also present.

Unlike the Lowepro PhotoTrekker, the Tamrac also has space for a laptop, which is good if you need to edit your images in the field. It's comfy to carry too, thanks to the padding in the straps. That's just as well as the Expedition is a heavy bag, even when it's completely empty.

Verdict

Cheaper than the Lowepro equivalent and sporting a laptop section too, the Tamrac Expedition 7x is great for anyone shooting sport or landscapes.

Build	★★★★★
Features	★★★★★
Performance	★★★★★
Value for money	★★★★★
Rating	★★★★★

Crumpler
Big Cheese

www.intro2020.co.uk

Guide price: £225

Street price: £175

- **Dimensions:** 40x50x31cm
- **Weight:** 1,950g

Crumpler bags always lead the way in terms of good looks, and the Big Cheese is no exception. It's available in four colour combinations and manages not to look like a camera bag, without being overly loud either. A good choice for the urban shooter, albeit the wealthy one; this is not one of the cheaper options.

Build quality is excellent and attention to detail is impressive. A single main compartment contains all of your gear, and this is accessed through the rear of the bag by unzipping the back. You can also access some of this chamber more easily through a quick-access zip opening on the front. At the back of this bag is also a roomy laptop compartment and a selection of pockets.

There's enough space in the Big Cheese for two DSLR bodies and half a dozen lenses, as well as a laptop and a few other accessories. It's a comfy bag to carry, though less convenient to sling over just one arm. Landscapers should note that the Big Cheese lacks a tripod strap.

Verdict

A good-looking offering from Crumpler that can take loads of photographic kit and is good to carry around for long periods of time.

Build	★★★★★
Features	★★★★☆
Performance	★★★★★
Value for money	★★★☆☆
Rating	★★★★☆

GADGET BAGS

Lowepro Photo Trekker AW II

www.daymen.co.uk

Guide price: £315

Street price: £220

- **Dimensions:** 37x38x54.5cm
- **Weight:** 4,700g

HIGHLY RATED

This might be one of the most expensive bags we have on test, but you do get an awful lot for your money. The interior of the PhotoTrekker AW II is vast – big enough for three DSLR bodies, an extensive medium-format outfit or even a large-format camera. If you are a serious landscape photographer and you want to take every bit of your kit away with you, then this is the bag to do it in.

Fully loaded, the PhotoTrekker could weigh a ton, but thanks to the design of the straps and back padding, the bag is comfortable to carry. The interior of the bag is carved up into over a dozen separate spaces with padded, adjustable dividers, and the inside of the top has three large, transparent accessory pockets for filters and the like.

At the front of the bag, there is a huge accessory pocket and Lowepro has even included a second small day sack, which can be used separately or attached to the exterior of the PhotoTrekker to expand it's storage capabilities even further.

Verdict

No matter who you are, we reckon you could get every bit of gear you own in here! The PhotoTrekker AW II is huge, but it's easy to carry too.

Build	★★★★★
Features	★★★★★
Performance	★★★★★
Value for money	★★★★☆
Rating	★★★★★

Crumpler Co. Gigolo 9500

www.intro2020.co.uk

Guide price: £120

Street price: £120

- **Dimensions:** 41x32.5x19.5cm
- **Weight:** 2,100g

HIGHLY RATED

The Company Gigolo is Crumpler's take on the photo-briefcase and it's a radical departure from the norm, boasting a funky clamshell-type design. There are six sizes in the range, with the 9500 on test here being the largest.

The bag is designed with two zippered compartments, one for your photo gear and documents and the other to hold a laptop. Open the main section and you'll find a large area with movable padded compartments to safely store your camera gear (we managed three entry-level DSLRs with standard zooms and three further lenses), with room to spare for a flashgun and filters. A divider separates this area from another section with pockets where you can store documents and a fair number of items, such as photo accessories, pens, memory cards, maps and so on.

The shape, padding and tough Chicken Tex Supreme fabric gives an excellent degree of protection for your outfit and a weatherproof cover is included.

Verdict

The Crumpler Gigolo is a versatile bag that is surprisingly spacious and very comfortable to use. At around £120, it's reasonably priced,

Build	★★★★★
Features	★★★★★
Performance	★★★★☆
Value for money	★★★★★
Rating	★★★★★

Lowepro Classified 250AW

www.daymen.co.uk

Guide price: £165

Street price: £120

- **Dimensions:** 48.5x28x35cm
- **Weight:** 1,910g

BEST BUY

A discreet camera bag with room for lots of camera gear as well as a laptop, or A4-sized papers. Good for those of us who shoot in multiple locations and need to transport kit between them.

The interior of the bag is very deep, so you can double-up on storage by stacking items on top of each other. The bag's depth also makes it very suitable for cameras with long lenses, for instance Nikon's 24-70mm f/2.8 and 70-200mm f/2.8 optics. A padded section provides storage for a 15in laptop too.

One of the advantages of a shoulder bag is that you don't have to put it down to get your camera out of it and the Classified 250AW provides a stable platform for the street photographer.

Leather is used to good effect throughout the bag and the grab handles and shoulder strap are very well designed. A luggage sleeve means that you can attach the Classified 250AW to the handles of a wheelie case. The bag is hand-luggage friendly too.

Verdict

A superbly built bag, full of innovative design features. Comfy to carry and big enough to hold a lot of kit, while being easily accessible on the move.

Build	★★★★★
Features	★★★★★
Performance	★★★★★
Value for money	★★★★★
Rating	★★★★★

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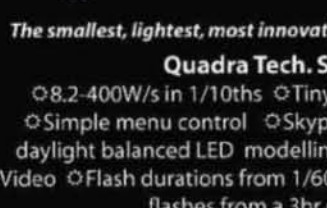

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Top picks: Flashguns and studioflash kits

Photography is simply the manipulation of light. But, sometimes, natural light just doesn't provide the effect you want so we've selected our top two flashguns and studio kits to help shed some light on which products offer great value

Nissin Speedlite Di622

www.kenro.co.uk; 01793 615836

Guide price: £150

Street price: £100

MAIN SPECIFICATIONS

- **Guide Number:** 25 (ISO 100, m)
- **Flash coverage:** 16-70mm (24-105mm)
- **Recycling time:** four to six seconds
- **Bounce facility:** Yes (0 to 90°)
- **Swivel facility:** Yes (0 to 270°)
- **TTL:** Yes
- **AF assist beam:** Yes
- **Strobe flash:** No
- **Wireless flash:** Yes

Digital SLR BEST BUY

The Nissin Di622 has excellent build quality for a flash unit that costs around £100, it's as good as models costing twice its price. This flashgun also has some rewarding features that set it apart from many other flashguns at this price range. These include second-curtain sync, slave flash and a standby mode that kicks in after two minutes of non-use to save your battery power. It also includes a flash stand and a diffuser for coverage as wide as 16mm and a fill-in reflector. There is no LCD panel on the rear, instead a series of LEDs indicate power and a single button handles the modes. The Nissin Di622 flashgun is available for Canon and Nikon DSLRs and considering the quality of features and the reasonable price, offers a decent cut-price alternative to branded models.

Sigma EF-530 DG Super

www.sigma-imaging-uk.com; 01707 329999

Guide price: £250

Street price: £220

MAIN SPECIFICATIONS

- **Guide Number:** 28-53 (ISO 100, m)
- **Flash coverage:** 16-70mm (24-105mm)
- **Recycling time:** four to six seconds
- **Bounce facility:** Yes (0-90°)
- **Swivel facility:** Yes (0-270°)
- **TTL:** Yes
- **AF assist beam:** Yes
- **Strobe flash:** Yes
- **Wireless flash:** Yes

Digital SLR HIGHLY RATED

Sigma not only makes great value lenses, it also boasts a couple of excellent flashguns, with this being its top model. This model is available in Canon, Nikon, Pentax, Sigma and Sony versions and is packed with stacks of features. In fact, it will take you quite a while to read the EF-530's instruction manual to get to grips with them all! One interesting feature is the High Speed Sync, which allows you to fire the unit at shutter speeds above your camera's usual flash sync speed. The unit can also be used as a master or a slave unit and offers a wide-angle flash diffuser panel. The unit is also easy to use with the buttons spaced out and a bright and clear LCD monitor. The battery compartment slider, however, could be a potential weak spot after sustained use. An excellent flashgun.

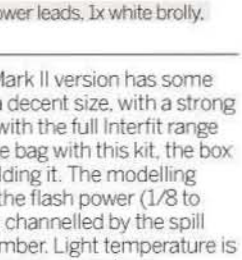
Interfit EX150 MKII outfit

www.interfitphotographic.com

Guide price: £250

Street price: £199

Digital SLR HIGHLY RATED



MAIN SPECIFICATIONS

- **No. of heads:** 2x 150Ws
- **Power:** 19-150Ws
- **Guide number (ISO 100, m):** 22
- **Modelling lamp:** Full (100W)/Off
- **Fitting:** EX type
- **Trigger Voltage:** 5v

KIT INCLUDES

2x flash heads, 2x stands, 2x sync leads, 2x power leads, 1x white brolly, 2x spill kills, 1x softbox, 1x DVD

Replacing the successful EX150 kit, the Mark II version has some impressive new features. The heads are a decent size, with a strong polycarbonate build and are compatible with the full Interfit range of accessories. Though there is no storage bag with this kit, the box it comes in is sturdy and adequate for holding it. The modelling lamps give a decent amount of light and the flash power (1/8 to full-power) is very respectable, and when channelled by the spill kills, can add 50 percent to the Guide Number. Light temperature is a little on the cool side, so using Raw or a manual reading is advised. This is a great kit for the money and a good choice for the amateur. It may not be as extensive as some, but the build quality of the equipment more than makes up for it.

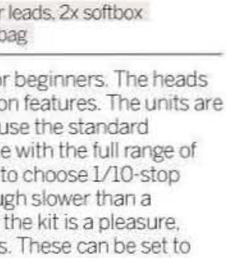
Elinchrom D-lite 2 outfit

www.flashcentre.com; 0207 8375649

Guide price: £517

Street price: £429

Digital SLR BEST BUY



MAIN SPECIFICATIONS

- **No. of heads:** 2x 150Ws
- **Power:** 19-150Ws
- **Guide number (ISO 100, m):** 22
- **Modelling lamp:** Full (100W)/Off
- **Fitting:** EX type
- **Trigger Voltage:** 5v

KIT INCLUDES

Kit includes: 2x flash heads, 2x stands, 2x power leads, 2x softbox (one medium, one small), 1x light bag, 1x stand bag

This is without doubt one of the best kits for beginners. The heads are compact but sturdy, and far from light on features. The units are fan-cooled, have digital power control and use the standard Elinchrom mount, making them compatible with the full range of accessories. The power control allows you to choose 1/10-stop increments between 12-200Ws, and although slower than a stepless dial, it does allow precision. Using the kit is a pleasure, thanks mostly to its bright modelling lamps. These can be set to min or max levels, or proportionally with the power. The recycle time, at just 0.7sec, is fast enough to cope with model shoots and full-power is confirmed with a beep each time. Coverage is good and thanks to the dual softboxes, the lighting looks very natural.

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